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Generational Status and Educational Outcomes Among Asian and Hispanic 1988 Eighth Graders

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Highlights

The analysis presented in this report examines the relationship between the immigration or "generational" status of Asian and Hispanic students and various educational indicators and outcomes. Generational status as used here refers to the number of generations the student's family has been in the United States. The students were classified as 1) first-generation immigrant (born outside the United States); 2) second-generation (U.S.-born students with one or both of their parents born outside the United States); or 3) third-generation or higher (both parents and the student were born in the United States).

The analysis looks at how the generational status of Asian and Hispanic students from the 1988 eighth-grade cohort of the National Education Longitudinal Study of 1988 was associated with various educational outcomes as this cohort of young people entered and progressed through high school and began postsecondary education. It makes comparisons both *within* race–ethnicity and *between* generations on 1) student background (family and language characteristics); 2) eighth-grade experiences (eighth-grade school characteristics, achievement test scores, and plans for high school); 3) high school experiences (type of high school and graduation rates); 4) postsecondary expectations (student and parental); and 5) postsecondary enrollment.

Student Background Characteristics

Nearly half of eighth-grade Asians in 1988 were born outside the United States, compared with about 18 percent of their Hispanic peers.

- Asian students were more likely than Hispanic students to come from two-parent families and to have at least one parent with a college degree.
- First-generation students in each racial–ethnic group were more likely to come from families who lived at or below the poverty level than their second- and third-generation counterparts.

Language Characteristics

- Similar proportions of all 1988 eighth-grade Asians and Hispanics were categorized as being limited-English proficient (LEP) (6 and 8 percent, respectively). However, Hispanics from this cohort were more likely than their Asian peers to come from homes where a language other than English was spoken (66 percent versus 55 percent).

- Similar proportions of first-generation Asians and Hispanics were LEP students (12 and 15 percent, respectively), but second- and third-generation Hispanics were more likely to be LEP students than their Asian counterparts (10 and 5 percent versus 2 and 1 percent, respectively).
- The likelihood that a student's family spoke a foreign language in the home decreased for each racial–ethnic group when a family had been in the United States for three or more generations. Nonetheless, the rate at which Hispanics from different generations spoke only English in the home was consistently lower than that of their Asian counterparts.

1988 Mathematics, Reading, and Science Proficiency

- Among all eighth graders, Hispanics were more likely than Asians to be below proficiency in mathematics and science (25 versus 9 percent in mathematics and 41 versus 25 percent in science).
- The proportions of Asians and Hispanics who tested below proficiency in reading, however, did not differ significantly (14 and 19 percent, respectively).
- The gap in 1988 mathematics proficiency levels between Asian and Hispanic eighth graders appeared within each of the three generations.

Parental Education Expectations in 1988

- Overall, the parents of 1988 Asian eighth graders were more likely to expect their children to earn at least a college degree compared with the parents of Hispanic eighth graders (76 versus 47 percent).
- The parents of third-generation Asian students were less likely than the parents of first- and second-generation Asian students to expect their children to earn at least a bachelor's degree (54 percent versus 81 and 86 percent, respectively).

Postsecondary Enrollment

- As of 1994, among 1988 eighth graders, Asian students were far more likely to have enrolled in postsecondary education in general and in a 4-year institution in particular than their Hispanic counterparts.
- Although first- and second-generation Asians differed from their Hispanic counterparts in terms of their likelihood of enrolling in any postsecondary education by 1994, those who were third generation did not.

Foreword

This report is part of the Postsecondary Education Descriptive Analysis Reports (PEDAR) series. The PEDAR series consists of reports that focus on postsecondary education policy issues, taking advantage of a variety of education data sources, especially recently completed data collections. Other reports in the series include: *Access to Postsecondary Education for the 1992 High School Graduates* (NCES 98-105); *Confronting the Odds: Students at Risk and the Pipeline to Higher Education* (NCES 98-094); and *Postsecondary Financing Strategies: How Undergraduates Combine Work, Borrowing, and Attendance* (NCES 98-088).

This report examines the relationship between the immigration or "generational" status of Asian and Hispanic students and various educational indicators and outcomes. Generational status in this report refers to the number of generations the student's family has been in the United States. The association of the generational status of Asian and Hispanic students from the 1988 eighth-grade cohort and various educational outcomes was examined as this cohort of young people entered and progressed through high school and began postsecondary education. It compares both *within* and *between* generations on 1) student background (family and language characteristics); 2) eighth-grade experiences (eighth-grade school characteristics, achievement test scores, and plans for high school); 3) high school experiences (type of high school and graduation rates); 4) postsecondary expectations (student and parental); and 5) postsecondary enrollment.

The data used for this analysis were drawn from the National Education Longitudinal Study of 1988 (NELS:88/94), a survey that began with eighth graders in 1988 and followed them every two years through 1994. The analysis was limited to 1992 high school graduates.

The percentages and means presented in this report were produced using the public access NELS:88/94 Data Analysis System (DAS), a microcomputer application that allows users to specify and generate their own tables from the NELS data. The DAS produces design-adjusted standard errors necessary for testing the statistical significance of differences shown in the tables. Additional information about the DAS, and how it may be obtained, is included in appendix B of this report.

We hope that the information provided in this report will be useful to a wide range of interested readers, and that the results reported here will encourage others to use the NELS data.

Acknowledgments

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Introduction

Past research has consistently shown that compared with Hispanics, Asian students perform better in school, have higher expectations for educational attainment, are more likely to graduate from high school, and are more likely to continue their education past high school (Green et al. 1995, Sanderson 1996). Most of these studies, however, report statistics and findings without regard to differences *within* these groups, such as immigrant status (whether or not the student is foreign or U.S. born) and generational status (the number of generations the student's family has lived in the United States). These attributes have been shown to be important in recent quantitative and qualitative analysis (Suarez-Orozco 1991; Kao and Tienda 1996; RAND 1996). For example, one study of 1980 sophomores revealed that Asian immigrants were more likely to be in a high school academic track and to have higher educational aspirations in high school than Asian U.S.-born students. In addition, they were more likely to be in an academic track than both Hispanic immigrant and U.S.-born students (RAND 1996). A recent multivariate analysis showed that Asian immigrants outperform their second- and third-generation Asian counterparts in grades and test scores after controlling for background characteristics such as socioeconomic status (SES). However, second-generation Asians and Hispanics have higher college aspirations than both immigrant and third-generation (or greater) Asian and Hispanic students (Kao and Tienda 1996).

Using data from the National Education Longitudinal Study of 1988 (NELS:88/94), the analysis presented in this report examines the relationship between generational status and various educational indicators and outcomes of Asian and Hispanic students from the 1988 eighth-grade cohort as they entered and progressed through high school and began postsecondary education. It compares these cohorts both *within* and *between* generations on 1) student background (family and language characteristics); 2) eighth-grade experiences (eighth-grade school characteristics, achievement test scores, and plans for high school); 3) high school experiences (type of high school and graduation rates); 4) postsecondary expectations (student and parental); and 5) postsecondary enrollment.

Definitions

In this report, "generational status" refers to the number of generations the student's family has lived in the United States.[1] Students were classified according to the following criteria:

***First-generation**:* Students born outside of the 50 states or the District of Columbia.

***Second-generation**:* U.S.-born students at least one of whose parents was born outside of the 50 states or the District of Columbia.

***Third-generation or more**:* U.S.-born students whose parents were also U.S. born.[2]

The analysis first compares Asian and Hispanic students in the aggregate, and then Asian and Hispanic students within different generational groups.[3] An analysis by generational status includes a comparison of first-, second-, and third-generation Asian students with their Hispanic counterparts. For example, are first-generation Asians different from first-generation Hispanics? Next, comparisons are made *within* each of these racial–ethnic groups. For example, are first-generation Asians different from second- and third-generation Asians? Are third-generation Hispanics different from second- or first-generation Hispanics?

Limitations of the Data

A word of caution is warranted in interpreting these data because the sample sizes of both Asian and Hispanic students were relatively small in this analysis. When broken out by generational status, these sample sizes grew even smaller. Therefore, in some instances, the statistical power was not sufficient to make reliable statements about large apparent differences between groups.

Caution should also be taken when examining any broad racial–ethnic groupings. The category "Asian" in this analysis covers a wide variety of peoples from distinct cultures and SES backgrounds. The definition of "Asian" in NELS:88 differs from the guidelines provided by the Office of Management and Budget (OMB) contained in Statistical Directive No. 15. Specifically, West Indian and Middle Eastern students are classified as "Asians" in NELS:88 but would be de-

[1]This is the strategy used by Kao and Tienda (1996) in a recent analysis.

[2]Some of these students may be from families who have lived in the United States for more than three generations. However, the information needed to determine this (the birthplace of their grandparents) is not available in NELS:88/94. Throughout the report, the term *third generation* is used to indicate third generation or more for ease of presentation.

[3]In each table, estimates for the U.S.-born population of Asians and Hispanics are shown (this is the aggregate of second- and third-generation groups), but they are not discussed.

fined as "white" according to OMB's *Race and Ethnic Standards for Federal Statistics and Administrative Reporting*. For example, the families of first-generation Asian eighth graders were more likely to be from Southeast Asia, the Philippines, China, and Korea than from Japan or the Pacific Islands, while the families of second-generation Asian eighth graders were more likely to be from China, the Philippines, or Korea than from Japan (table 1). (Hispanic immigrants, however, seem to be consistently spread across the Hispanic subgroups, with Mexican-Americans making up a large proportion of each generation [table 2].) Although cultural differences between these Asian groups may account for some of the outcomes seen in this report, as shown in a recent publication from the American Council on Education, "combining findings on all [Asians] . . . conceals complexities and differences in the lives of distinct [Asian] groups" (Carter and Wilson 1997). Unfortunately, sample sizes in the NELS:88/94 data set for these subgroups are much too small to draw reliable statistical inferences from these differences.

Table 1—Percentage distribution of Asian eighth graders according to generational status and ethnicity: 1988

	Chinese	Filipino	Japanese	Korean	Southeast Asian	Pacific Islander	Other Asian
Total	16.9	20.2	4.8	10.0	12.5	7.2	28.5
First-generation[1]	19.0	18.6	1.7	11.1	23.3	1.6	24.8
Second-generation[2]	20.3	29.1	5.1	14.3	4.0	7.0	20.2
Third-generation or more[3]	7.0	10.1	11.8	0.6	0.3	20.5	49.8

[1]Students who were born outside of the 50 states or the District of Columbia.

[2]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[3]U.S.-born students whose parents were also U.S. born.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Table 2—Percentage distribution of Hispanic eighth graders according to generational status and ethnicity: 1988

	Mexican	Cuban	Puerto Rican	Other
Total	65.5	3.9	10.8	19.8
First-generation[1]	64.1	3.3	10.0	22.7
Second-generation[2]	61.7	6.0	16.8	15.5
Third-generation or more[3]	70.0	1.9	5.0	23.1

[1]Students who were born outside of the 50 states or the District of Columbia.

[2]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[3]U.S.-born students whose parents were also U.S. born.

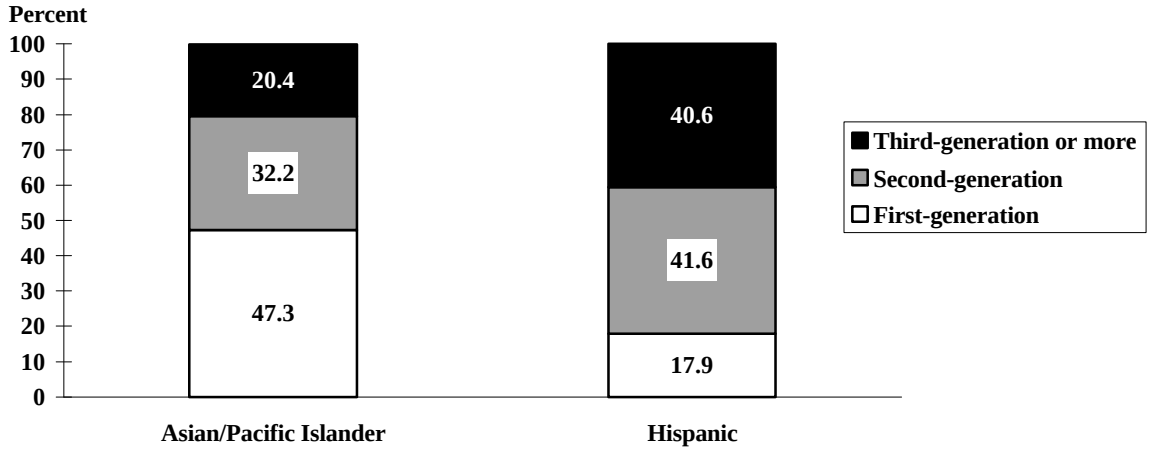
NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Family Background

An analysis of family demographics and language characteristics revealed a number of differences between students from the two ethnic groups. For example, they differed in terms of the proportions of who had recently immigrated, their family composition, socioeconomic status (SES), and educational attainment (figure 1 and table 3).[4] Among both Asians and Hispanics, some demographic characteristics held constant over generations and some did not. For example, both Asian and Hispanic first-generation students were more likely to be from low-SES families than were their second- or third-generation counterparts (table 3). While first-generation Asian and Hispanic students were equally likely to be limited English proficient (LEP),[5] second- and third-generation Asian students were less likely than their Hispanic counterparts to be LEP (table 4). Regardless of generational status, Hispanic students were more likely than Asian students to speak a language other than English at home.

Figure 1—Percentage distribution of 1988 Asian and Hispanic eighth graders according to generational status*: 1994



*First-generation students are those who were born outside of the United States or the District of Columbia. Second-generation students are U.S.-born students with one or both parents born outside of the United States or the District of Columbia. Third-generation students are U.S. born whose parents were also born in the United States.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

[4]Specific comparisons are discussed in the next sections, where the results of the statistical tests are also reported.

[5]See the glossary at the end of this report for a definition of this and other variables used here.

Table 3—Percentage distributions of 1988 eighth graders according to parents' highest education and family composition, and the percentage living at or below the poverty level, by Asian and Hispanic generational status: 1988

	Parents' highest education			Family composition			At or below poverty level
	High school diploma or less	Some post-secondary education	Associate's or bachelor's degree[1]	Two-parent	Single-parent	Other	
				Asian/Pacific Islander			
Total[2]	22.1	32.8	45.1	90.7	7.7	1.6	19.4
First-generation[3]	25.9	34.8	39.3	90.3	7.5	2.2	29.3
U.S.-born[4]	15.1	32.0	52.9	91.9	7.2	0.8	10.0
Second-generation[5]	12.0	24.9	63.1	91.6	7.7	0.7	7.7
Third-generation or more[6]	19.8	42.9	37.3	92.6	6.4	1.0	13.4
				Hispanic			
Total[2]	54.4	34.5	11.1	79.3	16.9	3.7	42.0
First-generation[3]	60.9	30.1	9.1	78.1	16.5	5.4	57.6
U.S.-born[4]	50.8	37.7	11.5	80.5	16.3	3.2	37.8
Second-generation[5]	62.3	28.9	8.9	81.4	15.7	2.9	44.0
Third-generation or more[6]	39.2	46.7	14.1	79.5	17.0	3.5	31.4

[1]Associate's degree or higher.

[2]Total includes cases with missing data on the generational status variable.

[3]Students who were born outside of the 50 states or the District of Columbia.

[4]All U.S.-born students, regardless of parents' birthplace.

[5]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[6]U.S.-born students whose parents were also U.S. born.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Family Demographics

Nearly half (47 percent) of eighth-grade Asians in 1988 were born outside the United States, compared with about 18 percent of their Hispanic peers (figure 1). About 32 percent of Asian students were second generation and 20 percent were third generation, compared with 42 percent and 41 percent, respectively, of Hispanic students.

Table 4—Percentage of 1988 eighth graders who were of limited English proficiency and were language minority students, by Asian and Hispanic generational status: 1988

	Limited English proficiency	Language minority
	Asian/Pacific Islander	
Total[1]	6.3	54.9
First-generation[2]	11.5	72.3
U.S.-born[3]	1.3	36.2
Second-generation[4]	1.9	52.8
Third-generation or more[5]	0.5	10.9
	Hispanic	
Total[1]	8.4	65.8
First-generation[2]	15.2	87.3
U.S.-born[3]	7.3	60.3
Second-generation[4]	10.0	80.5
Third-generation or more[5]	4.5	39.7

[1]Total includes cases with missing data on the generational status variable.
[2]Students who were born outside of the 50 states or the District of Columbia.
[3]All U.S.-born students, regardless of parents' birthplace.
[4]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.
[5]U.S.-born students whose parents were also U.S. born.

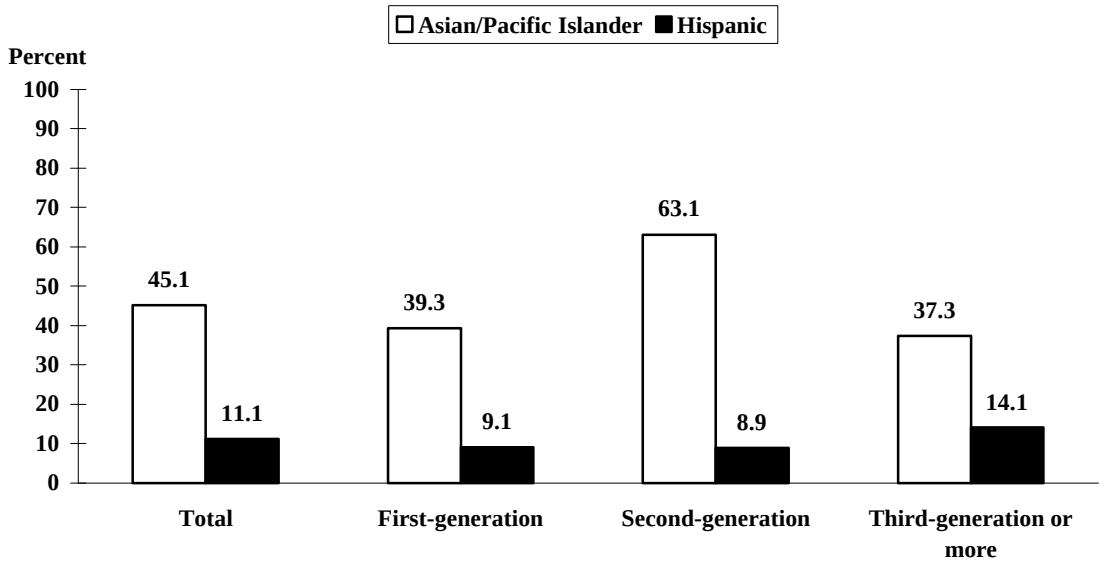
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Asian students were more likely than Hispanic students to come from two-parent families, and to have at least one parent with a college degree (table 3). Specifically, 45 percent of Asian students had a parent with a college degree and 91 percent came from a two-parent family, compared with 11 and 79 percent, respectively, of Hispanic students (table 3 and figure 2). Hispanic students were also more likely than Asian students to come from families who lived at or below the poverty line (42 versus 19 percent.)

Generational Status

The racial–ethnic differences in parents' educational attainment held across generational categories. For example, among Asians, 39 percent of first-generation students, 63 percent of second-generation students, and 37 percent of third-generation students had at least one parent with a college degree, compared with 9 percent each and 14 percent, respectively, of their Hispanic counterparts (table 3).

Figure 2—Percentage of 1988 eighth-grade students whose parents' highest level of education was an associate's or higher degree, by Asian and Hispanic generational status*: 1994



*First-generation students are those who were born outside of the United States or the District of Columbia. Second-generation students are U.S.-born students with one or both parents born outside of the United States or the District of Columbia. Third-generation students are U.S. born whose parents were also born in the United States.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Examining immigrant status within racial–ethnic groups showed differences among Asian generations and uniformity among Hispanic generations. Second-generation Asian students were more likely to have at least one parent with a college degree or higher education than their first- and third-generation counterparts (63 percent versus 39 and 37 percent) (table 3 and figure 2). Conversely, no such differences were detected among generations of Hispanic students with respect to their parents' educational attainment (9 percent each for first- and second-generation students and 14 percent for third-generation students) (table 3 and figure 2). Within generations, similar proportions of Asian students came from two-parent families (90, 92, and 93 percent of first-, second-, and third-generation Asian students). This pattern also held across generations of Hispanic students (78, 81, and 80 percent, respectively) (table 3).

Language Characteristics

Overall Differences in Racial–Ethnic Groups

Data describing the frequency and proficiency of language usage shows that Asian and Hispanic eighth graders in 1988 differed in terms of how well they used English. Two measures were used to describe students' language usage characteristics: Limited English Proficiency (LEP) and Language Minority (LM). Students categorized as LEP were those whose lack of proficiency in understanding, speaking, and writing English placed them at a disadvantage in English-speaking classrooms. The second category, LM, was used for students who lived in households where a language other than English was spoken (Bradby 1992; see Macias [1993] for a review of the history of these classifications).[6]

Similar proportions of all 1988 eighth-grade Asians and Hispanics were categorized as LEP (6 and 8 percent, respectively) (table 4). However, Hispanics were more likely to come from homes where a language other than English was spoken (66 percent versus 55 percent).

Generational Status

Similar proportions of first-generation Asians and Hispanics were LEP students (12 and 15 percent, respectively); however, second- and third-generation Hispanics were more likely to be LEP students than their Asian counterparts (10 and 5 percent versus 2 and 1 percent, respectively) (table 4).

Although first- and second-generation Hispanics were nearly equally likely to be LM students, third-generation Hispanics were less likely than their first- or second-generation counterparts to have a language other than English spoken at home (40 percent versus 87 and 81 percent, respectively). In contrast, with each generation, Asian students were less likely to live in homes where a language other than English was spoken. More than 70 percent of first-generation Asians were LM students, compared with 53 percent of second-generation and 11 percent of third-generation Asians.

Thus, the likelihood that a student's family spoke a foreign language in the home decreased for each racial–ethnic group when a family had been in the United States for three or more generations. Nonetheless, the rate at which Hispanics from different generations spoke only English in the home was consistently lower than that of their Asian counterparts.

[6]Students could, of course, be classified as either LEP or LM, neither, or both.

In sum, relative to Hispanics, higher proportions of Asian students were recent immigrants and came from higher SES, more educated two-parent families. Overall, Hispanic students were less likely to speak only English in the home, and Hispanic students from second- and third-generation families were more likely than their Asian counterparts to be classified as LEP.

Eighth-Grade Experiences

Asians and Hispanics, regardless of immigration status, differed on key aspects of their eighth-grade experiences. As discussed above, Asian eighth graders were more likely than Hispanic eighth graders to come from families with higher levels of education and income. As discussed in detail below, consistent with these family characteristics, Asian youths were more likely to attend a suburban, higher income school or private school, where a lower proportion of minorities attended, than their Hispanic counterparts. Further, Asians outperformed Hispanics on standardized tests and were more likely to plan to enroll in a college-preparatory program in high school.

School Characteristics

Overall Differences in Racial–Ethnic Groups

Consistent with their higher SES, Asian eighth graders were more likely to attend a suburban high school than Hispanic eighth graders (table 5). Fifty-five percent of Asians attended a suburban school in eighth grade. In contrast, 38 percent of Hispanics attended suburban schools. Asian eighth graders were also more likely than Hispanics to attend non-Catholic private schools—10 percent versus 1 percent, respectively. Moreover, Asians were less likely than Hispanics to attend rural schools, schools whose populations consisted of more than 50 percent minority students, and schools where more than 40 percent of the students came from impoverished families.

Generational Status

When comparing Asian and Hispanic eighth graders within generational status, Asians within each generation were found to be more likely to attend 1) lower poverty schools, 2) schools with fewer minority students, and 3) non-Catholic private schools. The overall differences in urbanicity between Asian and Hispanic students did not persist, however, through the generations. Although a difference remained between second-generation Asian and Hispanic students with respect to the proportions attending suburban schools, there were no differences in the proportions of first- or third-generation students attending suburban schools or students of any

Table 5—Percentage distributions of 1988 eighth graders according to eighth-grade school characteristics, by Asian and Hispanic generational status: 1988

	Urbanicity			Region				Percent minority	School control			Percent poverty
	Urban	Suburban	Rural	Northeast	North central	South	West	More than 50 percent	Public	Catholic	Private	More than 40 percent
Asian/Pacific Islander												
Total[1]	35.5	54.7	9.8	17.0	17.4	16.8	48.8	31.0	79.7	10.2	10.1	21.8
First-generation[2]	37.7	55.9	6.4	18.4	18.7	14.5	48.4	35.5	85.7	8.9	5.4	28.3
U.S.-born[3]	32.1	54.0	13.9	17.5	17.5	20.2	44.9	21.6	74.9	10.6	14.5	13.6
Second-generation[4]	27.0	64.0	9.0	19.3	18.0	19.1	43.5	21.2	74.8	12.0	13.2	13.5
Third-generation or more[5]	40.0	38.6	21.4	14.6	16.7	21.7	47.0	22.1	75.2	8.3	16.5	13.8
Hispanic												
Total[1]	42.6	37.7	19.8	12.9	10.6	34.0	42.5	66.6	90.4	8.3	1.4	48.1
First-generation[2]	53.3	34.9	11.9	14.0	5.6	35.3	45.2	77.9	95.2	2.7	2.0	62.3
U.S.-born[3]	40.2	38.2	21.6	12.2	12.4	35.6	39.8	63.2	90.0	8.8	1.2	44.8
Second-generation[4]	44.8	39.5	15.7	18.6	11.2	28.7	41.4	73.3	86.7	12.5	0.8	52.9
Third-generation or more[5]	35.6	36.7	27.7	5.6	13.6	42.7	38.2	53.7	93.4	5.1	1.5	37.0

[1]Total includes cases with missing data on the generational status variable.

[2]Students who were born outside of the 50 states or the District of Columbia.

[3]All U.S.-born students, regardless of parents' birthplace.

[4]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[5]U.S.-born students whose parents were also U.S. born.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study:1988/94, Data Analysis System.

generation attending rural schools. Hispanic third-generation students were less likely than other Hispanic students to attend schools with more than 50 percent minority enrollment.

1988 Mathematics, Reading, and Science Proficiency

Overall Differences in Racial–Ethnic Groups

Among all eighth graders, Hispanics were more likely than Asians to be below proficiency in mathematics and science (25 versus 9 percent in mathematics and 41 versus 25 percent in science) (table 6). The proportions of Asians and Hispanics who tested below proficiency in reading, however, did not differ significantly (14 and 19 percent, respectively).

Table 6—Percentage of 1988 eighth graders below proficiency in mathematics, reading, and science according to subject, by Asian and Hispanic generational status: 1988

	Mathematics	Reading	Science
		Asian/Pacific Islander	
Total[1]	8.8	13.8	25.2
First-generation[2]	9.8	17.0	27.5
U.S.-born[3]	8.8	9.9	21.5
Second-generation[4]	5.8	7.8	15.4
Third-generation or more[5]	13.5	13.4	31.1
		Hispanic	
Total[1]	24.6	19.1	41.3
First-generation[2]	20.1	23.0	49.2
U.S.-born[3]	24.7	16.6	37.7
Second-generation[4]	23.1	15.6	40.4
Third-generation or more[5]	26.3	17.6	35.0

[1]Total includes cases with missing data on the generational status variable.

[2]Students who were born outside of the 50 states or the District of Columbia.

[3]All U.S.-born students, regardless of parents' birthplace.

[4]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[5]U.S.-born students whose parents were also U.S. born.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Generational Status

The gap in 1988 mathematics proficiency levels between Asian and Hispanic eighth graders appeared within the second and third generations. The proportions of second- and third-generation Asians testing below proficiency in mathematics were 6 and 14 percent, respectively, while the corresponding proportions of Hispanics were higher (23 and 26 percent, respectively) (table 6).

There was some evidence that the proportions of first-generation Asians and Hispanics testing below basic proficiency in science differed (28 percent for Asians versus 49 percent for Hispanics).[7] Second-generation Asians and Hispanics also differed in their science proficiency (15 percent versus 40 percent). However, the proportions of *third-generation* Hispanics and Asians scoring below basic proficiency were similar (35 percent for Hispanics versus 31 percent for Asians).

When comparing Asians and Hispanics within generation groups who tested below proficiency in reading, no differences were observed. The proportions of first-, second-, and third-generation Asians testing below proficiency in reading were 17, 8, and 13 percent, respectively, compared with 23, 16, and 18 percent, respectively, for Hispanics.

Plans for High School Program

Overall Differences in Racial–Ethnic Groups

Asian eighth graders were more likely to plan to enroll in a college preparatory program in high school than their Hispanic peers (36 versus 22 percent) (table 7). Hispanic eighth graders were more likely to respond that they "did not know" in what kind of high school program they intended to enroll. For example, nearly one-third of Hispanic eighth graders (32 percent) did not know in what kind of high school program they would enroll compared with 27 percent of their Asian peers.

Generational Status

While the proportion of first-generation Asian eighth graders planning to enroll in a college preparatory high school program appeared to be larger than the comparable estimate for their

[7]While there appear to be differences among first- and second-generation students, these differences are associated with large standard errors, making the estimates somewhat unreliable and the differences are not statistically significant.

Table 7—Percentage distribution of 1988 eighth graders according to plans to enroll in various high school programs, by Asian and Hispanic generational status: 1988

	College preparatory/ academic	Vocational/ technical career	General program	Specialized high school	Other	Don't know
			Asian/Pacific Islander			
Total[1]	35.8	17.8	10.5	2.6	6.9	26.5
First-generation[2]	34.5	20.3	11.4	2.4	6.1	25.4
U.S.-born[3]	36.8	16.0	9.0	3.0	6.3	28.8
Second-generation[4]	45.3	12.4	9.5	1.9	3.8	27.1
Third-generation or more[5]	23.5	21.7	8.3	4.7	10.4	31.4
			Hispanic			
Total[1]	22.4	22.4	10.6	4.6	8.2	31.9
First-generation[2]	23.6	23.0	4.8	3.0	10.1	35.5
U.S.-born[3]	22.9	21.8	11.3	5.1	7.7	31.3
Second-generation[4]	21.5	22.8	10.1	4.6	7.9	33.1
Third-generation or more[5]	24.4	20.7	12.5	5.5	7.5	29.4

[1]Total includes cases with missing data on the generational status variable.

[2]Students who were born outside of the 50 states or the District of Columbia.

[3]All U.S.-born students, regardless of parents' birthplace.

[4]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[5]U.S.-born students whose parents were also U.S. born.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Hispanic counterparts (35 percent versus 24 percent), the difference was not statistically significant (table 7). However, the estimate of the proportion of second-generation Asians planning to enroll in a college preparatory program was about twice as large as that of their Hispanic counterparts (45 versus 22 percent).

As with the other comparisons between Hispanic and Asian eighth graders discussed above, by the third generation, the groups appeared to be similar. That is, the proportions of third-generation Asians and Hispanics who had such plans did not differ (24 percent for both groups). Again, as in the other comparisons, second-generation Asians differed from first- and third-generation Asians and second-generation Hispanics. That is, while there were no generational differences among Hispanics in the proportions who planned to enroll in such high school programs (24, 22, and 24 percent, respectively), overall there were differences among Asians. Third-generation Asian students were less likely than their second-generation counterparts to have planned to enroll in a college preparatory program (24 percent versus 45 percent).

High School Experiences

The types of programs in which Asian and Hispanic high school students actually participated reflect the plans and achievement of the two eighth-grade groups. As discussed in detail in the next section, Asians and Hispanics differed in their enrollment rates in academic programs, which may reflect the gap between Asians and Hispanics with respect to their plans to enroll in an academic program and the gap in their test scores. A difference also existed in the dropout rates of the two groups: Hispanics were nearly three times as likely as Asians to drop out of high school at least once by 1994 (table 9). On the other hand, the data on type of high school program attended and dropout rates show near uniformity across generational groups within each racial–ethnic group, indicating that these two factors are not related to how long Asians or Hispanics have been in this country.

Type of High School Program

Overall Differences in Racial–Ethnic Groups

A greater proportion of Asian students than Hispanic students enrolled in an academic program in high school. For example, nearly three-fourths (74 percent) of all 1988 Asian eighth graders were enrolled in an academic high school program, compared with 56 percent of their Hispanic counterparts (table 8).

Generational Status

This relationship also held for second-generation students: 79 percent of second-generation Asians enrolled in an academic program, compared with 56 percent of their Hispanic counterparts. However, there was not enough statistical evidence to conclude that Asian and Hispanic first- or third-generation students differed in their likelihood of enrolling in an academic program.

Comparisons within each racial–ethnic group (e.g., first-generation Hispanic versus second- and third-generation Hispanic) indicated that similar proportions of students in each generation were enrolled in an academic program. Among Asians, three-fourths of first-generation

Table 8—Percentage distribution of 1988 eighth graders according to type of high school program enrolled in at the last high school attended, by Asian and Hispanic generational status: 1988

	Academic	Vocational	Other
		Asian/Pacific Islander	
Total[1]	74.0	4.6	21.4
First-generation[2]	74.7	1.0	24.3
U.S.-born[3]	74.6	7.9	17.5
Second-generation[4]	79.4	3.2	17.4
Third-generation or more[5]	67.3	15.2	17.6
		Hispanic	
Total[1]	56.1	6.8	37.2
First-generation[2]	64.6	7.3	28.1
U.S.-born[3]	56.3	6.9	36.8
Second-generation[4]	56.1	5.9	38.0
Third-generation or more[5]	56.6	7.9	35.5

[1]Total includes cases with missing data on the generational status variable.
[2]Students who were born outside of the 50 states or the District of Columbia.
[3]All U.S.-born students, regardless of parents' birthplace.
[4]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.
[5]U.S.-born students whose parents were also U.S. born.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

students, 79 percent of second-generation students, and 67 percent of third-generation students were enrolled in academic programs. Among Hispanics, the proportions in academic programs across generations were also quite similar: 65, 56, and 57 percent, respectively. However, again, the difference between Asians and Hispanics within generational groups indicated that only the difference between second-generation Asians and Hispanics was statistically significant (79 percent and 56 percent, respectively).

Dropout Rates

Overall Differences in Racial–Ethnic Groups

Dropout rates show that Hispanic students were about three times as likely to drop out as their Asian peers (table 9). By 1994, 30 percent of Hispanics had dropped out of high school at least once, compared with 11 percent of Asians. In that year, 12 percent of Hispanics who were in

Table 9—Percentage of 1988 eighth graders who were considered dropouts in 1990 and 1992, had ever dropped out as of 1994, and percentage distribution according to completion status as of 1994, by Asian and Hispanic generational status

	Dropout status[1]		Ever dropped out as of 1994[2]	High school graduation status in 1994		
	1990	1992		Diploma or GED	Working on diploma or GED	Dropout[3]
			Asian/Pacific Islander			
Total[4]	2.3	6.0	10.9	92.6	3.1	4.3
First-generation[5]	1.7	9.6	14.5	91.6	1.9	6.5
U.S.-born[6]	1.8	3.0	7.4	93.6	3.6	2.8
Second-generation[7]	0.6	2.2	7.3	93.8	4.3	1.9
Third-generation or more[8]	3.6	4.1	7.5	93.4	2.4	4.2
			Hispanic			
Total[4]	8.8	17.8	29.5	81.3	6.9	11.8
First-generation[5]	13.5	18.4	27.6	82.6	3.9	13.5
U.S.-born[6]	6.8	15.8	27.9	83.0	6.7	10.3
Second-generation[7]	6.7	15.4	28.0	82.0	6.3	11.7
Third-generation or more[8]	7.0	16.1	27.7	84.1	7.2	8.8

[1]An individual who, at the time of the survey, had not completed high school and was not attending school (had not been in school for 4 consecutive weeks or more and was not absent due to illness).

[2]An individual who had ever dropped out of school, regardless of whether he or she ever returned to school.

[3]An individual who, at the time of the survey in 1994, had not completed school and was not attending school.

[4]Total includes cases with missing data on the generational status variable.

[5]Students who were born outside of the 50 states or the District of Columbia.

[6]All U.S.-born students, regardless of parents' birthplace.

[7]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[8]U.S.-born students whose parents were also U.S. born.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

the eighth grade in 1988 still had neither completed high school nor were working toward some sort of credential, compared with 4 percent of Asians.[8]

Generational Status

Within each racial–ethnic group, all generations dropped out at similar rates regardless of how dropping out was defined. To take just one category and one definition, there were no differences among Hispanic generational groups who were considered dropouts in 1994: 14 percent of

[8]These estimates are slightly different from those in the *Descriptive Summary Report* (U.S. Department of Education 1996) because of the different weight used.

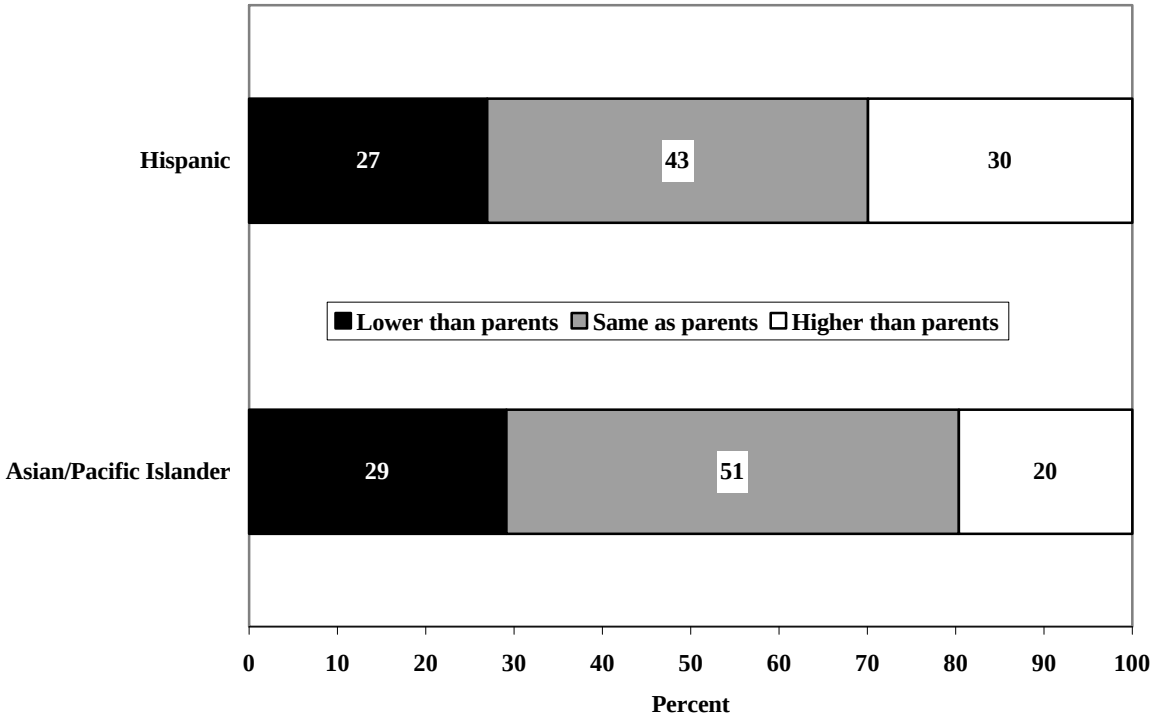
first-generation Hispanics dropped out, along with 12 and 9 percent of second- and third-generation Hispanics.

While there appears to be a large difference in the status dropout rates in 1994 of first-generation Asian and Hispanic students (7 percent versus 14 percent), there is not enough statistical evidence to conclude that these estimates are different. Once more, the one significant difference between Asians and Hispanics was among second-generation students: 2 percent of second-generation Asians had neither completed high school nor were working toward this goal, compared with 12 percent of their Hispanic counterparts. A similar difference was not found for third-generation students (4 and 9 percent, respectively), however.

Postsecondary Expectations

Paralleling the finding that Asian parents of 1988 eighth graders had higher levels of education than did Hispanic parents, Asian parents had higher expectations for their child's academic achievement. Although generally Asian students shared these expectations, a larger proportion of Hispanic students than Asian students had higher expectations for themselves than their parents did (figure 3).

Figure 3—Percentage distribution of 1988 Asian and Hispanic eighth graders according to their agreement with their parents' expectations for their education: 1988



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Parental Education Expectations in 1988

Overall, the parents of 1988 Asian eighth graders were more likely to expect their children to earn at least a 4-year college degree than the parents of Hispanic eighth graders (76 versus 47 percent) (table 10). This finding is evident when looking within each generational status. The parents of first- and second-generation Asians were more likely to expect their children to earn at least a bachelor's degree than their Hispanic counterparts (81 and 86 percent versus 41 and 48 percent, respectively), though the expectations of parents of Asian and Hispanic third-generation students did not differ (54 and 50 percent of parents, respectively, expected their children to earn a 4-year college degree or more).

Table 10—Percentage distribution of 1988 eighth graders according to highest level of education their parents expected of them, by Asian and Hispanic generational status: 1988

	High school graduation or less	Vocational school	Some college	Postsecondary degree[1]
		Asian/Pacific Islander		
Total[2]	7.5	3.0	13.3	76.3
First-generation[3]	7.1	1.6	10.2	81.2
U.S.-born[4]	6.7	4.4	15.3	73.6
Second-generation[5]	4.7	1.8	7.0	86.4
Third-generation or more[6]	9.7	8.3	28.0	54.0
		Hispanic		
Total[2]	17.9	8.9	25.8	47.4
First-generation[3]	19.2	10.5	28.9	41.4
U.S.-born[4]	16.8	8.8	25.4	49.0
Second-generation[5]	18.6	8.3	25.4	47.7
Third-generation or more[6]	15.0	9.3	25.4	50.3

[1]Bachelor's degree or more (does not include certificates).

[2]Total includes cases with missing data on the generational status variable.

[3]Students who were born outside of the 50 states or the District of Columbia.

[4]All U.S.-born students, regardless of parents' birthplace.

[5]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[6]U.S.-born students whose parents were also U.S. born.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

An analysis of parental expectations across generational groupings within each racial–ethnic category shows that parents of various Hispanic generations did not differ: 41 percent of the first-generation, 48 percent of second-generation, and 50 percent of third-generation students' parents expected their children to obtain a 4-year college degree. In contrast, there was a difference among the parents of Asian students across generations. The parents of third-generation Asian students were less likely than the parents of first- and second-generation Asian students to expect their children to earn at least a bachelor's degree (54 percent versus 81 and 86 percent, respectively).

Student Expectations for Educational Attainment Over Time: 1988 to 1994

Overall Differences in Racial–Ethnic Groups

As eighth graders in 1988, Asian students were more likely to expect to attain at least a bachelor's degree than were their Hispanic peers (77 versus 65 percent) (table 11).[9] Furthermore, this gap in expectations persisted through each survey year. The proportions of Asians who held such expectations were 74 percent in 1990, 81 percent in 1992, and 87 percent in 1994. In contrast, the proportions of Hispanic students who held such expectations were 54 percent in 1990, 65 percent in 1992, and 74 percent in 1994.

Generational Status

Second-generation Asian students were more likely to expect to earn a college degree in nearly every survey year compared with their Hispanic counterparts.[10] For example, as eighth graders in 1988, 84 percent of second-generation Asians had these expectations compared with 61 percent of their Hispanic counterparts. However, in each survey year, there were no differences between the proportions of third-generation Asians and Hispanics who expected to earn a college degree. In 1988, for example, 61 percent of third-generation Asians expected a college degree, as did 63 percent of third-generation Hispanics. In 1994, the proportions were 73 and 75 percent, respectively. There were no differences among Hispanics of various generation groups for expecting to attain a college degree.

When examining parents' and students' expectations, Asian students were just as likely to concur with their parents' expectations as Hispanic students (figure 3). For instance, Asian

[9]This table is for Asian and Hispanic students who had never dropped out as of 1994—that is, only those enrolled in school at each follow-up were asked these questions.

[10]The exception to this is the difference in college degree expectations between immigrant Asian and Hispanic students in 1988, which was not statistically significant.

Table 11—Percentage of 1988 eighth graders who expected to earn at least a bachelor's degree by survey year, by Asian and Hispanic generational status[1]: 1988, 1990, 1992, and 1994

	1988	1990	1992	1994
		Asian/Pacific Islander		
Total[2]	76.9	73.9	81.1	87.3
First-generation[3]	78.0	77.9	88.5	87.3
U.S.-born[4]	75.1	74.1	79.5	87.4
Second-generation[5]	84.4	88.8	89.4	97.1
Third-generation or more[6]	61.0	52.0	64.0	72.6
		Hispanic		
Total[2]	64.9	54.4	65.1	73.7
First-generation[3]	70.2	49.1	73.3	69.7
U.S.-born[4]	62.1	55.9	63.7	75.0
Second-generation[5]	61.4	53.8	64.8	74.7
Third-generation or more[6]	62.8	58.1	62.7	75.4

[1]This table is based on Asians and Hispanics who never dropped out.
[2]Total includes cases with missing data on the generational status variable.
[3]Students who were born outside of the 50 states or the District of Columbia.
[4]All U.S.-born students, regardless of parents' birthplace.
[5]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.
[6]U.S.-born students whose parents were also U.S. born.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

students shared their parents' high expectations for academic attainment. In 1988, on average, 76 percent of Asian students had parents who expected their child to get a college degree, and 77 percent of Asian students desired the same for themselves (tables 10 and 11). On the other hand, among Hispanics, it was more likely that student expectations exceeded parental expectations. For example, in 1988 almost 30 percent of Hispanic eighth graders had education expectations that exceeded their parents', compared with 20 percent of Asians.[11] In the same year, 65 percent of Hispanic students were expecting a college degree, whereas 48 percent of them had parents holding these expectations for their child (tables 11 and 10). This gap in expectations between parents and students existed for all three generational groups of Hispanics.

[11]These percentages are based on a separate crosstabulation of student and parent expectations.

Postsecondary Enrollment

Overall Differences in Racial–Ethnic Groups

As of 1994, among 1988 eighth graders, Asian students were far more likely to have enrolled in postsecondary education in general and in a 4-year institution in particular than their Hispanic counterparts. About half (51 percent) of the Asian cohort had enrolled in a 4-year institution, one-quarter (26 percent) in a public 2-year institution, and one-fifth (21 percent) had not enrolled in any postsecondary institution (table 12).[12] In contrast, that year about one-quarter (23 percent) of the Hispanic cohort had enrolled in a 4-year institution, and about one-half (47 percent) had not enrolled in any postsecondary institution.

Table 12—Percentage distribution of 1988 eighth graders according to postsecondary enrollment status[1] in 1994, by Asian and Hispanic generational status

	No postsecondary education	4-year institution	Public 2-year institution	Other less-than-4-year institution[2]
			Asian/Pacific Islander	
Total[3]	20.9	50.8	25.7	2.6
First-generation[4]	18.2	52.0	27.6	2.2
U.S.-born[5]	21.1	55.7	19.7	3.5
Second-generation[6]	10.6	65.6	20.9	2.9
Third-generation or more[7]	36.8	41.0	17.9	4.3
			Hispanic	
Total[3]	47.2	23.3	24.8	4.6
First-generation[4]	44.3	23.3	24.8	7.6
U.S.-born[5]	46.0	24.8	25.2	3.9
Second-generation[6]	44.0	27.2	25.8	3.1
Third-generation or more[7]	48.1	22.4	24.7	4.8

[1]First postsecondary institution enrolled in by 1994.

[2]Primarily private, for-profit vocational and private, not-for-profit 2-year institutions.

[3]Total includes cases with missing data on the generational status variable.

[4]Students who were born outside of the 50 states or the District of Columbia.

[5]All U.S.-born students, regardless of parents' birthplace.

[6]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[7]U.S.-born students whose parents were also U.S. born.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

[12]This table describes the first type of institution attended.

Generational Status

When comparing across racial–ethnic groups within generations, Asians of each generation were more likely than Hispanics of each generation to enroll in a 4-year institution. Conversely, no differences existed within any generational group between Asians and Hispanics with respect to enrollment in a public 2-year institution. Although first- and second-generation Asians compared with Hispanics of the same generation differed in their likelihood of enrolling in any postsecondary education by 1994, those who were third generation did not.[13]

There were no differences among first-, second-, and third-generation Hispanics with respect to their enrollment in postsecondary institutions by 1994 (56, 56, and 52 percent, respectively). Although Asian third-generation students appeared to be less likely than other Asians to enroll in postsecondary education, this difference was not statistically significant.

[13]Again, though there is an 11-point difference between the estimates of the proportions of third-generation Asian and Hispanic students who were not enrolled, there is not enough statistical evidence to conclude that this difference is significant.

Multivariate Analysis

The descriptive analysis presented above indicated that 1) Asian eighth graders in 1988 outperformed their Hispanic counterparts in almost all measures of academic progress; 2) generally Asian students whose families recently immigrated to this country[14] had higher aspirations than did Asian students whose families had been in this country for several generations;[15] and 3) this pattern did not apply to Hispanics, as Hispanics of all generations performed similarly on most variables tested.

A multivariate analysis,[16] using race–ethnicity, generational status, and the combination of the two as variables, confirmed these tabular findings. Concentrating on differences among students in their postsecondary aspirations, academic preparation, and attendance in postsecondary education, Asian students were more likely than Hispanic students 1) to have parents who expected them to finish a bachelor's degree; 2) to expect to finish a bachelor's degree; 3) to have enrolled in an academic program in high school; and 4) to have enrolled in a postsecondary institution by 1994. (See table C1 in appendix C for the results of this analysis.)

However, the tabular analysis presented above also showed that the family characteristics of Asian and Hispanic students differed in some important ways. Asian students—especially those from first- or second-generation families—had parents who were better educated than were the parents of Hispanic students of similar generations. With the tabular analysis, it is difficult to untangle the impact of generational status on student performance. It is possible that these advantages may explain the differences seen in the descriptive tables and may have little association with the student's generational status at all. That is, the success of second-generation Asians relative to their second-generation Hispanic peers may be more a function of the income and education of their families than of their generational status or race–ethnicity.

The purpose of the following multivariate analysis is to try to control statistically (using weighted least squares regressions) for some of these interrelated factors (including parents' education), while determining if there were differences between Asian and Hispanic students across generations. This section concentrates on differences among students in their postsecondary

[14]They were immigrants themselves or their parents were immigrants.

[15]In terms of plans to enroll in an academic program in high school and their parents' expectations for their education.

[16]A logistic regression model was used to test the main effect of race–ethnicity and the interaction of race–ethnicity and generational status for each dependent variable. See appendix B for details.

aspirations, academic preparation, and attendance in postsecondary education. The independent variables included family composition, parents' education, poverty status, school control, geographic region, and urbanicity, along with generational status. The regression coefficients were subsequently used to adjust the original estimates, taking into account the joint effects of all the independent variables. Although only the adjusted means for generational status are shown in the tables presented in the next section, the adjusted means for the full set of independent variables are presented in appendix C. Separate equations were estimated for Asians and Hispanics.[17]

Expectations

Table 13 displays the percentage of eighth graders whose parents expected them to attain a bachelor's degree, while table 14 displays eighth graders' own expectations. Both variables were measured when the student was in the eighth grade.

Even after controlling for background characteristics such as income level and parental education, Asian students were more likely than Hispanic students to have parents who expected their child to earn at least a bachelor's degree.[18] Furthermore, first-generation Asian students had parents who held higher educational expectations for their child than did third-generation Asian students. While there is some evidence that a greater proportion of second- versus third-generation Asian students had parents who expected them to finish college with at least a bachelor's degree, this difference was not statistically significant.[19]

Student expectations for their own education presented a similar pattern. After controlling for background characteristics, the estimates for second- and third-generation Asian students appeared higher than those for third-generation Hispanic students, but were no longer statistically significant.

High School Program

Asian students overall were not more likely than Hispanic students to enroll in an academic program in high school, after controlling for background characteristics (tables 15 and C6). Furthermore, after holding other variables constant, for both Asians and Hispanics, generational status did not seem to make a difference in their likelihood of enrolling in an academic program.

[17]These weighted least square regression analyses are separate from the logistic regression analyses presented earlier.

[18]Separate regression analysis was conducted with the variables in table 14 as explanatory variables and a dummy variable representing Hispanic versus Asian students. See table C6 for the results of these analyses.

[19]It was significant at the 0.10 level but not the conventional 0.05 level.

Table 13—Percentage of 1988 eighth graders whose parents expected them to earn a bachelor's degree or higher, and percentage adjusted for the covariation of other demographic and school characteristics, by Asian and Hispanic generational status[1]: 1988

	Parents expect child to receive bachelor's degree or higher			
	Unadjusted percentage	Adjusted percentage[2]	WLS coefficient[3]	Standard error[4]
		Asian/Pacific Islander		
Total	76.3	76.3	46.9	0.2
First-generation[5]	81.2*	81.8*	24.4	11.1
Second-generation[6]	86.4*	80.5	23.0	12.7
Third-generation or more[7]	*54.0*	*57.4*	*(†)*	*(†)*
		Hispanic		
Total	47.4	47.4	32.7	0.1
First-generation[5]	41.4	46.8	-0.2	7.0
Second-generation[6]	47.7	48.2	1.2	4.2
Third-generation or more[7]	*50.3*	*47.0*	*(†)*	*(†)*

*Comparison with reference group statistically significant at the 0.05 level. Italicized row is reference group.

†Not applicable for reference group.

[1]Controls in the WLS regression are family composition, parents' education, poverty status, school control, geographic region, and urbanicity. The base category is third-generation status (see appendix table C2).

[2]Percentages adjusted for differences associated with control variables in the regression (see appendix B for details).

[3]Weighted least squares (WLS) coefficient (see appendix B for details).

[4]Standard error of the WLS coefficient, adjusted for design effect (see appendix B for details).

[5]Students who were born outside of the 50 states or the District of Columbia.

[6]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[7]U.S.-born students whose parents were also U.S. born.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

An examination of table C3 in appendix C indicates that parents' education was associated with enrolling in an academic program in high school for both Asians and Hispanics. In particular, students whose parents held a bachelor's degree or higher were more likely to have enrolled in an academic program while in high school than those whose parents had completed high school or had less education. As was shown in table 3, second-generation Asian students were more likely to have parents with a bachelor's degree or higher than their first- or third-generation counterparts. After taking into account this association between parents' education and generational status (along with other variables), the differences between generations of Asian students in their likelihood of enrolling in an academic program are no longer statistically significant.

Table 14—Percentage of 1988 eighth graders who expected to earn at least a bachelor's degree, and percentage adjusted for the covariation of other demographic and school characteristics, by Asian and Hispanic generational status[1]: 1988

	Students expected to receive a bachelor's degree or higher			
	Unadjusted percentage	Adjusted percentage[2]	WLS coefficient[3]	Standard error[4]
		Asian/Pacific Islander		
Total	72.0	72.0	59.2	0.2
First-generation[5]	71.6	73.5	13.0	11.6
Second-generation[6]	82.0*	75.9	15.4	13.3
Third-generation or more[7]	*56.5*	*60.5*	*(†)*	*(†)*
		Hispanic		
Total	55.6	55.6	48.6	0.1
First-generation[5]	59.8	59.9	3.4	7.2
Second-generation[6]	53.1	52.4	-4.1	4.3
Third-generation or more[7]	*55.8*	*56.5*	*(†)*	*(†)*

*Comparison with reference group statistically significant at the 0.05 level. Italicized row is reference group.

†Not applicable for reference group.

[1]Controls in the WLS regression are family composition, parents' education, poverty status, school control, geographic region, and urbanicity. The base category is third-generation status (see appendix table C3).

[2]Percentages adjusted for differences associated with control variables in the regression (see appendix B for details).

[3]Weighted least squares (WLS) coefficient (see appendix B for details).

[4]Standard error of the WLS coefficient, adjusted for design effect (see appendix B for details).

[5]Students who were born outside of the 50 states or the District of Columbia.

[6]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[7]U.S.-born students whose parents were also U.S. born.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

College Enrollment

In the descriptive tables presented earlier, Asian students were more likely than their Hispanic counterparts to have enrolled in postsecondary education by 1994. After controlling for demographic characteristics and other factors, Asians still tended to enroll in postsecondary education at higher rates than did Hispanics (table 16 and table C6).

Examination of table C6 in appendix C indicates that parents' education was significantly related to postsecondary enrollment for both Asian and Hispanic students. After taking into account this and other interrelationships in the table, estimated differences among generations of Asians, while appearing large, were no longer statistically significant.

Table 15—Percentage of 1988 eighth graders enrolled in an academic program at last school attended, and percentage adjusted for the covariation of other demographic and school characteristics, by Asian and Hispanic generational status[1]: 1988

	Enrolled in an academic program			
	Unadjusted percentage	Adjusted percentage[2]	WLS coefficient[3]	Standard error[4]
		Asian/Pacific Islander		
Total	74.0	74.0	80.4	0.2
First-generation[5]	74.7	72.8	0.1	11.9
Second-generation[6]	79.4*	75.3	2.6	13.6
Third-generation or more[7]	*67.3*	*72.7*	*(†)*	*(†)*
		Hispanic		
Total	56.1	56.1	31.0	0.1
First-generation[5]	64.6	63.4	10.7	7.4
Second-generation[6]	56.1	55.4	2.7	4.4
Third-generation or more[7]	*56.6*	*52.8*	*(†)*	*(†)*

*Comparison with reference group statistically significant at the 0.05 level. Italicized row is reference group.

†Not applicable for reference group.

[1]Controls in the WLS regression are family composition, parents' education, poverty status, school control, geographic region, and urbanicity. The base category is third-generation status (see appendix table C4).

[2]Percentages adjusted for differences associated with control variables in the regression (see appendix B for details).

[3]Weighted least squares (WLS) coefficient (see appendix B for details).

[4]Standard error of the WLS coefficient, adjusted for design effect (see appendix B for details).

[5]Students who were born outside of the 50 states or the District of Columbia.

[6]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[7]U.S.-born students whose parents were also U.S. born.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Table 16—Percentage of 1988 eighth graders enrolled in a postsecondary institution, and percentage adjusted for the covariation of other demographic and school characteristics, by Asian and Hispanic generational status[1]: 1988

	Enrolled in a postsecondary institution			
	Unadjusted percentage	Adjusted percentage[2]	WLS coefficient[3]	Standard error[4]
		Asian/Pacific Islander		
Total	79.1	79.1	80.7	0.2
First-generation[5]	81.8*	80.2	14.0	11.0
Second-generation[6]	89.4*	84.8	18.6	12.6
Third-generation or more[7]	*63.2*	*66.2*	*(†)*	*(†)*
		Hispanic		
Total	52.8	52.8	29.4	0.1
First-generation[5]	55.7	57.2	8.9	7.2
Second-generation[6]	56.0	54.5	6.1	4.3
Third-generation or more[7]	*51.9*	*48.3*	*(†)*	*(†)*

*Comparison with reference group statistically significant at the 0.05 level. Italicized row is reference group.

†Not applicable for reference group.

[1]Controls in the WLS regression are family composition, parents' education, poverty status, school control, geographic region, and urbanicity. The base category is third-generation status (see appendix table C5).

[2]Percentages adjusted for differences associated with control variables in the regression (see appendix B for details).

[3]Weighted least squares (WLS) coefficient (see appendix B for details).

[4]Standard error of the WLS coefficient, adjusted for design effect (see appendix B for details).

[5]Students who were born outside of the 50 states or the District of Columbia.

[6]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[7]U.S.-born students whose parents were also U.S. born.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Summary

The results of this report replicate well-known differences in academic proficiency levels, track placement, dropout rates, and type of postsecondary enrollments between Asian and Hispanic students. Likewise, Asian students in all three generation groups were also more likely to come from two-parent families and families with higher levels of education than their Hispanic counterparts.[20] However, parents of third-generation Asians and Hispanics had similar expectations for their children in terms of earning a college degree.

Furthermore, while past research has suggested that there are differences in achievement, aspirations, and educational attainment among Hispanics of various generations, the results in this report did not find such differences. In fact, there were no measurable differences in dropout rates or expectations for attaining a college degree among various Hispanic generational groups. Some other intergenerational differences did appear, however. For example, third-generation Hispanics were less likely to come from homes where a language other than English was spoken, and were less likely to attend schools in the eighth grade with more than 50 percent minority students than first- and second-generation Hispanics.

Unlike the pattern for Hispanic students, there do appear to be more differences among generations for Asian students. First- and second-generation Asian eighth graders were more likely to have higher aspirations and to attend a postsecondary institution than their peers in later generations. Even though differences between second- and third-generation Asians were the most consistent, there were also differences in the family background characteristics of first- and second-generation Asians compared with third-generation Asians. In the multivariate analysis, variation in other variables did indeed account for some of the differences in outcomes for first- and second-generation Asians compared with later generations.

[20]The exception was Asian and Hispanic first-generation students. Over 90 percent of first-generation Asian students were from two-parent families, compared with 78 percent of Hispanic students. This difference was significant at the 0.10 level but not the conventional 0.05 level.

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Appendix A—Glossary

This glossary describes the variables used in this report. The items were taken directly from the National Education Longitudinal Study (NELS:88/94) Data Analysis System (DAS). (See appendix B for a description of the DAS.) The variables used in this analysis were either items taken directly from the NELS surveys or they were derived by combining one or more items in these surveys. For direct survey items, those variable names beginning with "BY" were collected in the Base Year (1988), "F1" variables were collected in the First Follow-up (1990), F2 in the Second Follow-up (1992), and F3 in the Third Follow-up (1994).

The variables listed in the index below are in the order they appear in the report; the glossary is in alphabetical order by DAS variable name (displayed along the right-hand column).

Glossary Index

Math proficiency 1988 **BY2XMPRO**

A binary variable indicating basic proficiency in mathematics. Proficiency calculations use a refinement of the student weight (BYQWT) that adjusts for the fact that not all students who completed the Base Year questionnaire completed the cognitive tests. These variable names begin with BY2X for Base Year test, followed by R for reading, M for mathematics, or S for science. This analysis looks at the percentage of students who are below proficiency in mathematics. Students at the proficiency level in mathematics understand simple arithmetic operations on whole numbers—essentially single-step operations that rely on rote memory.

Reading proficiency 1988 **BY2XRPRO**

A binary variable indicating student's overall reading proficiency. For complete discussion, see BY2XMPRO. This analysis looks at the percentage of students who are below proficiency in reading. Students at the proficiency level in reading have mastered simple reading comprehension, including reproducing detail and/or the author's main thought.

Science proficiency 1988 **BY2XSPRO**

A binary variable indicating student's overall science proficiency. For complete discussion, see BY2XMPRO. This analysis looks at the percentage of students who are below proficiency in science. Students at the proficiency level in science have an understanding of everyday science concepts, e.g., "common knowledge" that can be acquired in everyday life.

Family composition 1988 **BYFCOMP**

Describes the family or household composition. For this analysis the responses were aggregated as follows:[21]

Two-parent family	Household is composed of mother and father, mother and male guardian, father and female guardian, or other combination of relatives/guardians.
Single-parent family	Household is composed of mother only or father only.
Other	Household is composed of other relative, or nonrelative.

Limited English proficiency 1988 **BYLEP**

Specifies whether the student had Limited English Proficiency. It was constructed from the student self-evaluation and the teacher evaluations for proficiency in using the English language. BYLEP was set to 1 if the student responded to any of BYS27A, BYS27B, BYS27C, or BYS27D (which asks the student how well he or she understands, speaks, reads, and writes English) with 4 ("Not very well"), or if either teacher marked yes to the question, which asks if the student is a Limited English Proficient student. If both the student responses and the teacher response to these questions were missing, BYLEP is set to missing. It was 0 otherwise.

The values are as follows:

Not Limited English Proficiency
Limited English Proficiency

[21]In the DAS, aggregation of a variable is accomplished with the "lumping" tag function (for categorical variables) or the "cut" function for continuous variables.

Language minority 1988 **BYLM**

Specifies whether the student was classified as Language Minority (from a home in which a language other than English is typically spoken). If either teacher answered yes to BYT1_11 (student is Language Minority), or if the student response indicated a language other than English was usually spoken in the home, the student was classified as Language Minority. It is important to take account of student self-reports of language minority status, since the Base Year data suggest that teachers underreported the language minority status of Hispanics, Asians, and other groups as well. The percentage of students classified as Language Minority was used in this analysis.

Parental educational expectations 1988 **BYP76**

Parent response to the question: "How far in school do you expect your eighth grader to go?"

High school graduation or less	Includes less than high school, GED, and high school graduation.
Vocational school	Includes vocation, trade, business schools that are less than 2 years, more than 2 years, and less than 4 years.
Some college	Includes less than 2 years of college, more than 2 years of college, and completion of a 2-year program.
Postsecondary degree	Includes finishing a 4- to 5-year program, master's degree, and Ph.D.

Parents' highest education level 1988 **BYPARED**

Characterizes the level of education attained by either of the parents of the student. It was constructed using parent questionnaire data, and student data were used whenever parent data were either missing or not available. The categories are high school diploma or less; some postsecondary, but did not obtain a degree; postsecondary graduate (parent attained an associate's degree or higher).

Poverty level 1988 **BYPOVRTY**

This variable indicates whether the family income of Base Year respondents was above or at or below the poverty threshold. The percentage of students whose family income is at or below the poverty level is used in this analysis.

Plans for postsecondary education 1988 **BYPSEPLN**

Characterizes the postsecondary school plans of the student and was taken directly from BYS45. The percentage of students who plan to obtain a bachelor's degree or higher is used in this analysis.

Asian or Pacific Islander subdivision **BYS31B**

Student response to the question "Which of these best describes your background?" Asked of those who identified themselves as Asian/Pacific Islander. Possible responses were:

Chinese
Filipino
Japanese
Korean
Southeast Asian (Vietnamese, Laotian, Cambodian/Kampuchean, Thai, etc.)
Pacific Islander (Samoan, Guamanian, etc.)
South Asian (Asian Indian, Pakistani, Bangladeshi, Sri Lankan, etc.)
West Asian (Iranian, Afghan, Turkish, etc.)
Middle Eastern (Iraqi, Israeli, Lebanese, etc.)
Other Asian

Hispanic subdivision **BYS31C**

Student response to the question "Which of these best describes your background?" Asked of those who identified themselves as Hispanic. Possible responses were:

Mexican, Mexican-American, Chicano
Cuban
Puerto Rican
Other Hispanic

In which program respondent expects to enroll in high school 1988 **BYS49**

Student response to the question "In which program do you expect to enroll in high school?" The responses were categorized as follows:

College preparatory/academic
General program
Specialized high school
Other
Don't know

Highest level of education expected 1994 **EDEXPECT**

Student response to the question "What is the highest level of education you ever expect to complete?" This analysis looks at the percentages of students who expected to earn at least a bachelor's degree (bachelor's degree, master's degree or equivalent, doctorate or equivalent, or medical or law or equivalent degree).

Educational aspirations 1990 **F1S49**

Student response to the question "As things stand now, how far in school do you think you will get?" The percentage of students who expected to earn a bachelor's degree or more is used in this analysis.

Highest level of education expected 1992 **F2ASPIRE**

Student response to the question "As things stand now, how far in school do you think you will get?" The percentage of students who expected to earn a bachelor's degree or more is used in this analysis.

Dropout status (Second Follow-up) **F2DOSTAT**

Indicates enrollment status, either dropout or student, as of the Second Follow-up only. This analysis looks at the percentage of students who had dropped out of school at the time of the survey in 1992.

Dropout status (First Follow-up) **F2F1DOST**

Indicates the dropout status of a sample member in the First Follow-up. This analysis looks at the percentage of students who had dropped out of school at the time of the survey in 1990. F2F1DOST is like F1DOSTAT except that it reflects the correction of sampling errors included in the second follow-up release of the first follow-up files.

High school diploma status 1994 **F3DIPLOM**

If this information was collected for a sample member in 1994, the 1994 data were used. Otherwise, 1992 transcript data were used. If 1992 transcript data were not available for a sample member, and the 1992 status variable indicated the sample member was an early graduate, then F3DIPLOM was set to 1. If none of the above were applicable and the sample member completed a 1992 dropout questionnaire, this source was checked for the answer "I have a GED or equivalent," and F3DIPLOM was set to 2 if the sample member selected this response. The 1994 question was "Which of the following best describes your high school graduation status? You . . . received a high school diploma; received a GED; received a certificate of attendance; are currently enrolled in high school; are currently working toward the equivalent of a HS diploma (GED); did not graduate or earn GED/certificate and are not currently working toward GED/certificate?"

Diploma or GED
Working on diploma or GED
Dropped out

Ever dropped out **F3EVDOST**

This variable indicates whether the student ever dropped out of high school, regardless of whether he or she ever returned. If information concerning this status was collected in 1994 for a student, it was used. Otherwise, the two relevant 1992 variables from the transcript data and nontranscript sources were checked. If either indicated that the student ever dropped out, then F3EVDOST was set to 2. This analysis uses the percentage of students who had ever dropped out by 1994.

Last high school program type **F3HSPROG**

This variable contains the type of high school program the student was involved in at his or her last high school. If this information was collected in the 1992 transcript study for a respondent, then the 1992 data were used. If 1992 transcript data were not collected, then 1994 questionnaire data were used. If neither were available, then 1992 questionnaire data were used. The categories are as follows:

Academic	Academic track
Vocational	Vocational track
Other	Other

Race–ethnicity **F3RACE**

Student response to the question "What is your racial or ethnic background?" This report focuses on Asian/Pacific Islanders and people of Hispanic descent.

Hispanic	A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
Asian/Pacific Islander	A person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or Pacific Islands. This includes people from China, Japan, Korea, the Philippine Islands, Samoa, India, and Vietnam.

Type of first institution **F3SEC2A1**

This variable contains the institution type associated with the first institution attended. The primary source is the SECTOR variable in the 1993/94 Integrated Postsecondary Education Data System (IPEDS) data file.

No postsecondary education reported	
Other less-than-4-year institution	Includes public less-than-2-year; private, for-profit; and private, not-for-profit less-than-4-year institutions.
Public 2-year institution	Public 2-year
Any 4-year institution	Includes public 4-year, and private, not-for-profit 4-year institutions.

School control 1988 **G8CTRL**

Classifies the type of school into public, Catholic, other religious, and nonsectarian private schools, as reported by the school administrator. The classification was collapsed as follows:

Public	Public school
Other private	Includes private, other religious (non-Catholic) and private, nonreligious institutions.
Private Catholic	Private Catholic school

Percent minority of school 1988 **G8MINOR**

Reflects the percentage of minority students in the eighth grade reported by the school.

Geographic region of school 1988 **G8REGION**

Indicates in which of the four U.S. Census regions the school is located. It was created by recoding the sampled state of the eighth-grade school into the four Census Bureau regions. The categories are as follows:

Northeast	Composed of New England and Middle Atlantic states.
North Central	Composed of East North Central and West North Central states.
South	Composed of South Atlantic, East South Central, and West South Central states.
West	Composed of Mountain and Pacific states.

Urbanicity of school 1988 **G8URBAN**

Classifies the urbanicity of the student's school. It was created directly from QED (Quality Education Data). The classifications are the Federal Information Processing Standards as used by the U.S. Census. Classifications reflect the sample school's metropolitan status at the time of the 1980 decennial census. The categories are as follows:

Urban
Suburban
Rural

Generational status—Asian/Pacific Islander and Hispanic **GENSTAT**

This variable reflects the generational status of Asian/Pacific Islander and Hispanic students. It is based on parents' reports of their place of birth as well as that of their children. An Asian/Pacific Islander is a person having origins in any of the Pacific Islander peoples of the Far East, Southeast Asia, the Indian subcontinent, or Pacific Islands. This includes people from China, Japan, Korea, the Philippine Islands, Samoa, India, and Vietnam. A Hispanic is a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race. Categories are defined as follows:

Asian/Pacific Islander-first generation	Students born outside of the 50 states or the District of Columbia.
Asian/Pacific Islander-second generation	U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.
Asian/Pacific Islander-third+ generation	U.S.-born students whose parents are also U.S. born.
Hispanic-first generation	Students born outside of the 50 states or the District of Columbia.
Hispanic-second generation	U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.
Hispanic-third+ generation	U.S.-born students whose parents are also U.S. born.

U.S. born **NATIVITY**

This variable is similar to GENSTAT except it collapses both second- and third-generation students into one category ("U.S. born") for both Asians/Pacific Islanders and Hispanics.

Appendix B—Technical Notes and Methodology

The National Education Longitudinal Study of 1988

The National Education Longitudinal Study of 1988 (NELS:88/94) is a survey that began with a nationally representative sample of 1988 eighth graders and followed them every two years. The most recent follow-up survey was conducted in 1994. Respondents' teachers and schools were also surveyed in 1988, 1990, and 1992, while parents were surveyed in 1988 and 1992. In contrast to previous longitudinal studies, NELS:88/94 began with eighth graders in order to collect data regarding the transition from elementary to secondary education, and the First Follow-up in 1990 provided the data necessary to understand this transition. In order for researchers to understand the dropout process more thoroughly, a special survey was administered to dropouts. Also, to provide a comparison group for the 1980 sophomores surveyed in High School and Beyond (HS&B), the NELS:88/94 sample was "freshened" with new participants who were 10th graders in 1990.

In spring of 1992, when most of the NELS:88 sample were 12th graders, the Second Follow-up was conducted. This survey focused on the transition from high school to the labor force and postsecondary education. The sample was also "freshened" in order to create a representative sample of 1992 seniors for the purpose of conducting trend analyses with the 1972 and 1982 senior classes (National Longitudinal Study of 1972 [NLS–72] and HS&B). Students identified as dropouts in the First Follow-up were also resurveyed in 1992. In spring of 1994, the Third Follow-up was administered, in which sample members were questioned about their labor force and postsecondary experiences and family formation. For more information about the NELS:88/94 survey, consult the NELS:88/94 Methodology Report.[22]

Accuracy of Estimates

The statistics in this report are estimates derived from a sample. Two broad categories of error occur in such estimates: sampling and nonsampling errors. Sampling errors occur because observations are made only on samples of students, not on entire populations. Nonsampling

[22]U.S. Department of Education, National Center for Education Statistics, *National Education Longitudinal Study (NELS:88/94) Methodology Report*, NCES 96-174 (Washington D.C.: 1996).

errors occur not only in sample surveys but also in complete censuses of entire populations. Non-sampling errors can be attributed to a number of sources: inability to obtain complete information about all students in all institutions in the sample (some students or institutions refused to participate, or students participated but answered only certain items); ambiguous definitions; differences in interpreting questions; inability or unwillingness to give correct information; mistakes in recording or coding data; and other errors of collecting, processing, sampling, and imputing missing data.

Response Rates

This analysis used the eighth-grade cohort panel weight (F3PNLWT).[23] This weight applies to sample members who completed questionnaires in all four ro\unds of NELS:88 and adjusts for non-response to any wave of the survey. The only type of non-response that was not adjusted for was item non-response. The major source of item non-response was the generational status variable. Asians had a non-response rate to this variable of 8.8 percent while the non-response rate for Hispanics was 13.7 percent.

Data Analysis System

The estimates presented in this report were produced using the NELS:88/94 Data Analysis System (DAS). The DAS software makes it possible for users to specify and generate their own tables from the NELS:88/94 data. With the DAS, users can replicate or expand upon the tables presented in this report. In addition to the table estimates, the DAS calculates proper standard errors[24] and weighted sample sizes for these estimates. For example, table B1 contains standard errors that correspond to table 12 in the text, and was generated by the DAS. If the number of valid cases is too small to produce a reliable estimate (fewer than 30 cases), the DAS prints the message "low-N" instead of the estimate.

In addition to tables, the DAS will also produce a correlation matrix of selected variables to be used for linear regression models. Included in the output with the correlation matrix are the design effects (DEFTs) for each variable in the matrix. Since statistical procedures generally

[23]For details on the creation of this weight see U.S. Department of Education, National Center for Education Statistics, *National Education Longitudinal Study (NELS:88/94) Methodology Report*, NCES 96-174 (Washington D.C.: 1996).

[24]The NELS:88/94 sample is not a simple random sample and, therefore, simple random sample techniques for estimating sampling error cannot be applied to these data. The DAS takes into account the complexity of the sampling procedures and calculates standard errors appropriate for such samples. The method for computing sampling errors used by the DAS involves approximating the estimator by the linear terms of a Taylor series expansion. The procedure is typically referred to as the Taylor series method.

Table B1—Standard errors for table 12: Percentage distribution of 1988 eighth graders according to post-secondary enrollment status in 1994, by Asian and Hispanic generational status

	No postsecondary education	4-year institution	Public 2-year institution	Other less-than-4-year institution[1]
		Asian/Pacific Islander		
Total	2.58	2.80	0.60	2.34
First-generation[2]	4.90	5.01	0.82	3.64
U.S.-born[3]	2.98	3.49	1.04	2.71
Second-generation[4]	2.30	4.30	1.25	3.84
Third-generation or more[5]	5.82	4.82	1.75	3.93
		Hispanic		
Total	1.90	1.39	0.62	1.75
First-generation[2]	5.11	3.73	2.04	4.51
U.S.-born[3]	2.02	1.74	0.77	1.83
Second-generation[4]	3.03	2.59	0.74	2.69
Third-generation or more[5]	2.76	2.18	1.35	2.32

[1]Primarily private, for-profit vocational and private, not-for-profit 2-year institutions.
[2]Students who were born outside of the 50 states or the District of Columbia.
[3]All U.S.-born students, regardless of parents' birthplace (includes second and third generation or more).
[4]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.
[5]U.S.-born students whose parents were also U.S. born.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

compute regression coefficients based on simple random sample assumptions, the standard errors must be adjusted with the design effects to take into account the NELS:88/94 stratified sampling method. (See discussion under "Statistical Procedures" below for the adjustment procedure.)

For more information about the NELS:88/94 and other Data Analysis Systems, consult the NCES DAS Website (**WWW.PEDAR-DAS.org**) or contact:

Aurora D'Amico
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555 New Jersey Avenue, NW
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(202) 219-1365
Internet address: Adamico@ed.gov

Statistical Procedures

Three types of statistical procedures were employed in this report: testing differences between means, logistic regression, and adjustment of means after controlling for covariation among a group of variables. Each procedure is described below.

Differences Between Means

The descriptive comparisons were tested in this report using Student's *t* statistic. Differences between estimates are tested against the probability of a Type I error, or significance level. The significance levels were determined by calculating the Student's *t* values for the differences between each pair of means or proportions and comparing these with published tables of significance levels for two-tailed hypothesis testing.

Student's *t* values may be computed to test the difference between estimates with the following formula:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2}} \qquad (1)$$

where E_1 and E_2 are the estimates to be compared and se_1 and se_2 are their corresponding standard errors. Note that this formula is valid only for independent estimates. When the estimates were not independent (for example, when comparing a total percentage with that for a subgroup that is included in the total), a covariance term was added to the denominator of the *t*-test formula.

There are hazards in reporting statistical tests for each comparison. First, comparisons based on large *t* statistics may appear to merit special attention. This can be misleading, since the magnitude of the *t* statistic is related not only to the observed differences in means or percentages but also to the number of students in the specific categories used for comparison. Hence, a small difference compared across a large number of students would produce a large *t* statistic.

A second hazard in reporting statistical tests for each comparison occurs when making multiple comparisons among categories of an independent variable. For example, when making paired comparisons among different levels of income, the probability of a Type I error for these comparisons taken as a group is larger than the probability for a single comparison. When more than one difference between groups of related characteristics or "families" are tested for statistical significance, one must apply a standard that assures a level of significance for all of those comparisons taken together.

Comparisons were made in this report only when $p \leq .05/k$ for a particular pairwise comparison, where that comparison was one of k tests within a family. This guarantees in both that the individual comparison would have $p \leq .05$ and that for k comparisons within a family of possible comparisons, the significance level for all the comparisons will sum to $p \leq .05$.[25]

Logistic Regression

Logistic regression was used to examine how race and generation status were associated with postsecondary aspirations, academic preparation, and attendance in postsecondary education. In a logistic regression, the probability of a given outcome, such as enrollment in a postsecondary institution, is the dependent measure. A logistic regression is used so that the estimated probabilities will fall between zero and one. It was hypothesized that generation status was associated with these outcomes for Asian students, but not for Hispanic students. Hence an interaction term was introduced into the equation along with race and generation status.

The B coefficients in tables are interpreted as the change in the log odds ratio, also called the logit, for a one-unit change in the independent variable. With more than one variable in the equation it is useful to see the "effect" of each category by creating a matrix that reproduces the chances of a given outcome in each subcategory. For example, the proportion of students attending at least some postsecondary education is displayed in table B2 while the parameter estimates are shown in table B3.

Table B2—Percentage of the eighth-grade class of 1988 attending some postsecondary education by 1994

Total	62.9
Asian	
First-generation	81.6
Second-generation	89.3
Third or more	63.4
Hispanic	
First-generation	55.5
Second-generation	56.2
Third or more	51.9

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

[25]The standard that $p \leq .05/k$ for each comparison is more stringent than the criterion that the significance level of the comparisons should sum to $p \leq .05$. For tables showing the t statistic required to ensure that $p \leq .05/k$ for a particular family size and degrees of freedom, see Olive Jean Dunn, "Multiple Comparisons Among Means," *Journal of the American Statistical Association* 56 (1961): 52–64.

Table B3—Parameter estimates regressing race–ethnicity and generational status on attending any post-secondary institution

		Asian			Hispanic		
	b	First	Second	Third	First	Second	Third
Race–ethnicity	0.4745	1	1	1			
Generational status							
First versus third	0.1436	1			1		
Second versus third	0.1715		1			1	
Generational by race–ethnicity							
First versus third	0.7944	1					
Second versus third	1.4026		1				
Constant	0.0766	1	1	1	1	1	1
$\beta_0+\beta_1x_1+\beta_2x_2\ldots\beta_jx_j$		1.49	2.13	0.55	0.22	0.25	0.08
$(e^{\beta0+\beta1+\beta2\ldots\beta j}/(1+ e^{\beta0+\beta1+\beta2\ldots\beta j}))$		0.816	0.893	0.634	0.555	0.562	0.519

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

The third through eighth columns of table B3 indicate which coefficients would apply to an individual with specific characteristics. For example, let the conditional probability that a student was enrolled in postsecondary education be denoted as $P(Y = 1 \mid \mathbf{x}) = \pi(\mathbf{x})$. Then the logit of the multiple regression model determining postsecondary enrollment for Asian immigrant students would be:

$$g(x) = \beta_0+\beta_1x_1+\beta_2x_2\ldots\beta_jx_j$$
$$= 0.4745\ (1) + (0.1436\ (1)) + (0.1715\ (0)) + (0.7944\ (1)) + (1.4026\ (0)) + (0.0766\ (1))$$
$$= 1.49$$

In which case $\pi(\mathbf{x}) = e^{g(x)} \Big/ 1+ e^{g(x)}$

It then follows that the probability of a this type of student having ever enrolled in post-secondary education would be:

$$\pi(\mathbf{x}) = (e^{\beta_0+\beta_1+\beta_2\ldots\beta_j}/(1+ e^{\beta_0+\beta_1+\beta_2\ldots\beta_j}))$$
$$= .816$$

From this matrix one can see that the constant or intercept term represents the logit for Hispanic third-generation students, the coefficient for race–ethnicity represents the change in the logit for Asian third-generation students over Hispanic third-generation students, etc.

Adjustment of Means to Control for Background Variation

Tabular results are limited by sample size when attempting to control for additional factors that may account for the variation observed between two variables. For example, when examining the percentages of those who completed a degree, it is impossible to know to what extent the observed variation is due to socioeconomic status (SES) differences and to what extent it is due to differences in other factors related to SES, such as type of institution attended, intensity of enrollment, and so on. However, if a nested table were produced showing SES within type of institution attended, within enrollment intensity, the cell sizes would be too small to identify the patterns. When the sample size becomes too small to support controls for another level of variation, one must use other methods to take such variation into account.

To overcome this difficulty, multiple linear regression was used to obtain means that were adjusted for covariation among a list of control variables.[26] Adjusted means for subgroups were obtained by regressing the dependent variable on a set of descriptive variables such as parents' education, students' academic preparation, students' educational aspirations, and so on. Substituting ones or zeros for the subgroup characteristic(s) of interest and the mean proportions for the other variables results in an estimate of the adjusted proportion for the specified subgroup, holding all other variables constant. For example, consider a hypothetical case in which two variables, race–ethnicity and income, are used to describe an outcome *Y* (such as attending a 4-year college). The variables race–ethnicity and family income would be recoded into a dummy variable representing race–ethnicity and a dummy variable representing family income:

Race–ethnicity	*R*
Black students	1
Non-black students	0
and	
Family income	*F*
Low income	1
Not low income	0

[26]For more information about weighted least squares regression, see Michael S. Lewis-Beck, *Applied Regression: An Introduction*, vol. 22 (Beverly Hills, CA: Sage Publications, Inc., 1980); William D. Berry and Stanley Feldman, *Multiple Regression in Practice*, vol. 50 (Beverly Hills, CA: Sage Publications, Inc., 1987).

The following regression equation is then estimated from the correlation matrix output from the DAS:

$$\hat{Y} = a + b_1 R + b_2 F \quad (2)$$

To estimate the adjusted mean for any subgroup evaluated at the mean of all other variables, one substitutes the appropriate values for that subgroup's dummy variables (1 or 0) and the mean for the dummy variable(s) representing all other subgroups. For example, suppose we had a case where *Y* was being described by race–ethnicity (*R*) and family income (*F*), coded as shown above, and the means for *R* and *F* are as follows:

Variable	Mean
R	0.109
F	0.282

Suppose the regression equation results in:

$$\hat{Y} = 0.51 + (0.032)R + (-0.21)F \quad (3)$$

To estimate the adjusted value for black students, one substitutes the appropriate parameter values into equation 3.

Variable	Parameter	Value
a	0.510	—
R	0.032	1.000
F	-0.210	0.282

This results in:

$$\hat{Y} = 0.51 + (0.032)(1) + (-0.21)(0.282) = 0.48$$

In this case the probability of attending a 4-year college for black students is 0.48, and this represents the expected outcome for black students who resemble the average student across the other variables (in this example, family income). In other words, the adjusted percentage who enrolled in a 4-year college is 48 percent (0.48 x 100 for conversion to a percentage).

It is relatively straightforward to produce a multivariate model using the DAS, since one of the DAS output options is a correlation matrix, computed using pairwise missing values.[27] This matrix can be used by most statistical software packages as the input data for least-squares regression. That is the approach used for this report, with an additional adjustment to incorporate the complex sample design into the statistical significance tests of the parameter estimates (described below). For tabular presentation, parameter estimates and standard errors were multiplied by 100 to match the scale used for reporting unadjusted and adjusted percentages.

Most statistical software packages assume simple random sampling when computing standard errors of parameter estimates. Because of the complex sampling design used for the NELS:88/94 survey, this assumption is incorrect. A better approximation of their standard errors is to multiply each standard error by the average design effect of the independent variable (DEFT),[28] where the DEFT is the ratio of the true standard error to the standard error computed under the assumption of simple random sampling. It is calculated by the DAS and produced with the correlation matrix.

[27]Although the DAS simplifies the process of making regression models, it also limits the range of models. Analysts who wish to use other than pairwise treatment of missing values or to estimate probit/logit models (which are the most appropriate for models with categorical dependent variables) can apply for a restricted data license from NCES. See John H. Aldrich and Forrest D. Nelson, *Linear Probability, Logit and Probit Models* (Quantitative Applications in the Social Sciences, vol. 45) (Beverly Hills, CA: Sage University Press, 1984).

[28]The adjustment procedure and its limitations are described in C.J. Skinner, D. Holt, and T.M.F. Smith, eds., *Analysis of Complex Surveys* (New York: John Wiley & Sons, 1989).

Appendix C—Multivariate Tables

Table C1—Results from logistic regression[1] analysis of generational status and race–ethnicity

A. Dependent variable: parents expect that their child will receive a bachelor's degree or more

Variable	B	S.E. B	t	df	Sig	Odds ratio
Race–ethnicity[2]	0.15	0.22	0.46	1	0.50	1.16
Generational status			4.35	2	0.11	
First versus third	-0.37	0.18	4.35	1	0.04	0.69
Second versus third	-0.10	0.13	0.64	1	0.43	0.90
Generational by race–ethnicity[2]			41.38	2	0.00	
First versus third	1.67	0.31	28.96	1	0.00	5.29
Second versus third	1.80	0.31	32.77	1	0.00	6.04
Constant	0.01	0.09	0.02	1	0.89	

B. Dependent variable: students expect that they will receive a bachelor's degree or more

Variable	B	S.E. B	t	df	Sig	Odds ratio
Race–ethnicity[2]	0.36	0.25	2.08	1	0.15	1.43
Generational status			3.06	2	0.22	
First versus third	-0.12	0.18	0.44	1	0.51	0.89
Second versus third	0.18	0.14	1.64	1	0.20	1.20
Generational by race–ethnicity[2]			14.64	2	0.00	
First versus third	0.82	0.35	5.38	1	0.02	2.27
Second versus third	1.39	0.37	14.31	1	0.00	4.00
Constant	0.45	0.09	23.30	1	0.00	

C. Dependent variable: student in an academic high school program

Variable	B	S.E. B	t	df	Sig	Odds ratio
Race–ethnicity[2]	0.47	0.20	5.56	1	0.02	1.60
Generational status			4.67	2	0.10	
First versus third	0.33	0.17	3.81	1	0.05	1.40
Second versus third	-0.02	0.13	0.03	1	0.87	0.98
Generational by race–ethnicity[2]			6.90	2	0.03	
First versus third	0.02	0.30	0.00	1	0.96	1.02
Second versus third	0.64	0.27	5.38	1	0.02	1.89
Constant	0.27	0.09	8.66	1	0.00	

D. Dependent variable: student enrolled in postsecondary education by 1994

Variable	B	S.E. B	t	df	Sig	Odds ratio
Race–ethnicity[2]	-0.47	0.23	4.10	1	0.04	0.62
Generational status			1.71	2	0.43	
First versus third	-0.14	0.19	0.60	1	0.44	0.87
Second versus third	-0.17	0.14	1.57	1	0.21	0.84
Generational by race–ethnicity[2]			17.72	2	0.00	
First versus third	-0.79	0.35	5.18	1	0.02	0.45
Second versus third	-1.40	0.33	17.60	1	0.00	0.25
Constant	-0.08	0.09	0.69	1	0.41	

[1]See appendix B for discussion of logistic regression performed here.

[2]Race–ethnicity is coded 1 for Asians and 0 for Hispanics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Table C2—Percentage of 1988 eighth graders with parents who expect their children to earn a bachelor's degree or higher, and percentage adjusted for the covariation of the variables listed in the table, by various characteristics[1]: 1988

	Asian				Hispanic			
	Unadjusted percentage	Adjusted percentage[1]	WLS coefficient[2]	Standard error[3]	Unadjusted percentage	Adjusted percentage[1]	WLS coefficient[2]	Standard error[3]
Total	76.3	76.3	46.9	0.0	47.4	47.4	32.7	0.0
Family composition								
Two-parent family	77.4	76.0	-8.0	19.8	47.3	46.2	-7.4	6.5
Single/Other	*71.7*	*84.0*	*(†)*	*(†)*	*48.7*	*53.6*	*(†)*	*(†)*
Parents' education								
High school or less	*58.4*	*62.2*	*(†)*	*(†)*	*33.9*	*35.8*	*(†)*	*(†)*
Some college	66.7	69.8	7.6	9.5	55.6*	55.9*	20.1	5.3
Bachelor's degree or greater	91.5*	89.3*	27.1	9.7	85.9*	80.2*	44.5	7.8
Poverty status 1988								
At or below poverty line	*64.1*	*73.5*	*(†)*	*(†)*	*34.5*	*40.4*	*(†)*	*(†)*
Above poverty line	80.1*	77.4	3.9	8.8	57.2*	52.8*	12.4	4.3
School control 1988								
Private/Parochial	81.3	80.9	5.1	7.0	73.7*	57.5	11.0	5.9
Public	*74.9*	*75.7*	*(†)*	*(†)*	*44.7*	*46.5*	*(†)*	*(†)*
School region 1988								
East	*78.9*	*76.6*	*(†)*	*(†)*	*50.6*	*46.4*	*(†)*	*(†)*
North central	84.7	83.6	6.9	11.0	42.0	39.1	-7.3	6.5
South	77.4	78.6	1.9	16.2	46.1	45.7	-0.7	5.5
West	71.7	73.4	-3.2	9.4	49.0	51.3	4.9	6.4
Urbanicity of school 1988								
Urban	*74.7*	*77.2*	*(†)*	*(†)*	*46.5*	*49.3*	*(†)*	*(†)*
Suburban	79.9	78.1	0.9	5.6	52.3	43.1	1.4	4.8
Rural	61.7*	66.6	-10.7	14.5	40.3	47.9	-4.8	8.5
Generational status								
First-generation[4]	81.2*	81.8*	24.4	11.1	41.4	46.8	-0.2	7.0
Second-generation[5]	86.4*	80.5	23.0	12.7	47.7	48.2	1.2	4.2
Third-generation or more[6]	*54.0*	*57.4*	*(†)*	*(†)*	*50.3*	*47.0*	*(†)*	*(†)*

*Comparison with reference group statistically significant at the 0.05 level. Italicized row is reference group.

†Not applicable for reference group.

[1]Percentages adjusted for differences associated with control variables in the regression (see appendix B for details).

[2]Weighted least squares (WLS) coefficient (see appendix B for details).

[3]Standard error of the WLS coefficient, adjusted for design effect (see appendix B for details).

[4]Students who were born outside of the 50 states or the District of Columbia.

[5]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[6]U.S.-born students whose parents were also U.S. born.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Table C3—Percentage of 1988 eighth graders who expected to earn at least a bachelor's degree, and percentage adjusted for the covariation of the variables listed in the table, by various characteristics

	Asian				Hispanic			
	Unadjusted percentage	Adjusted percentage[1]	WLS coefficient[2]	Standard error[3]	Unadjusted percentage	Adjusted percentage[1]	WLS coefficient[2]	Standard error[3]
Total	72.0	72.0	59.2	0.0	55.6	55.6	48.6	0.0
Family composition								
Two-parent family	71.8	70.4	-17.5	20.8	56.3	55.6	1.4	6.7
Single/Other	*75.2**	*87.9*	*(†)*	*(†)*	*53.1*	*54.2*	*(†)*	*(†)*
Parents' education								
High school or less	*52.0*	*55.4*	*(†)*	*(†)*	*45.7*	*48.2*	*(†)*	*(†)*
Some college	63.3	64.1	8.6	10.0	60.9*	58.7	10.5	5.5
Bachelor's degree or greater	88.9*	86.1*	30.7	10.1	85.6*	80.7*	32.5	8.1
Poverty status 1988								
At or below poverty line	*51.9*	*61.5*	*(†)*	*(†)*	*47.9*	*52.5*	*(†)*	*(†)*
Above poverty line	76.7*	74.3	12.8	9.2	62.4*	57.5	5.0	4.4
School control 1988								
Private/Parochial	65.4*	59.9*	-14.6	7.3	83.1*	75.6*	22.2	6.1
Public	*73.7*	*74.5*	*(†)*	*(†)*	*52.6*	*53.5*	*(†)*	*(†)*
School region 1988								
East	*79.2*	*77.7*	*(†)*	*(†)*	*62.6*	*58.6*	*(†)*	*(†)*
North central	69.2*	69.7	-8.0	11.5	46.9*	45.7	-12.9	6.6
South	80.6	76.6	-1.1	17.0	55.3	55.3	-3.2	5.7
West	67.5*	68.9	-8.8	9.9	55.9	56.9	-1.7	6.6
Urbanicity of school 1988								
Urban	*70.0*	*72.5*	*(†)*	*(†)*	*57.3*	*57.3*	*(†)*	*(†)*
Suburban	72.6	70.4	-2.1	5.9	57.2	55.2	-2.2	5.0
Rural	76.2	77.0	4.5	15.2	48.9*	51.7	-5.7	8.7
Generational status								
First-generation[4]	71.6	73.5	13.0	11.6	59.8	59.9	3.4	7.2
Second-generation[5]	82.1*	75.9	15.4	13.3	53.1	52.4	-4.1	4.3
Third-generation or more[6]	*56.6*	*60.5*	*(†)*	*(†)*	*55.8*	*56.5*	*(†)*	*(†)*

*Comparison with reference group statistically significant at the 0.05 level. Italicized row is reference group.

†Not applicable for reference group.

[1]Percentages adjusted for differences associated with control variables in the regression (see appendix B for details).

[2]Weighted least squares (WLS) coefficient (see appendix B for details).

[3]Standard error of the WLS coefficient, adjusted for design effect (see appendix B for details).

[4]Students who were born outside of the 50 states or the District of Columbia.

[5]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[6]U.S.-born students whose parents were also U.S. born.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Table C4—Percentage of 1988 eighth graders enrolled in an academic program at the last high school attended, and percentage adjusted for the covariation of the variables listed in the table, by various characteristics

	Asian				Hispanic			
	Unadjusted percentage	Adjusted percentage[1]	WLS coefficient[2]	Standard error[3]	Unadjusted percentage	Adjusted percentage[1]	WLS coefficient[2]	Standard error[3]
Total	74.0	74.0	80.4	0.0	56.1	56.1	31.0	0.0
Family composition								
Two-parent family	74.8	73.3	-3.9	21.3	57.5	56.9	7.2	6.9
Single/Other	*67.4*	*77.2*	*(†)*	*(†)*	*52.4*	*49.7*	*(†)*	*(†)*
Parents' education								
High school or less	*57.6*	*56.7*	*(†)*	*(†)*	*50.3*	*50.6*	*(†)*	*(†)*
Some college	67.9	67.7	10.9	10.3	59.7*	59.1	8.5	5.6
Bachelor's degree or greater	86.9*	86.8*	30.2	10.4	72.2*	70.6*	20.0	8.3
Poverty status 1988								
At or below poverty line	*71.7**	*71.7*	*(†)*	*(†)*	*54.0**	*55.2*	*(†)*	*(†)*
Above poverty line	76.1	81.2	-9.5	9.4	60.9	56.1	0.9	4.5
School control 1988								
Private/Parochial	68.7	66.5	-8.6	7.5	70.5*	68.4*	13.9	6.2
Public	*75.4*	*75.2*	*(†)*	*(†)*	*54.5*	*54.5*	*(†)*	*(†)*
School region 1988								
East	*80.6*	*82.3*	*(†)*	*(†)*	*51.5*	*50.3*	*(†)*	*(†)*
North central	71.4	73.7	-8.7	11.8	43.6	44.5	-5.9	6.8
South	75.3	70.8	-11.5	17.5	59.8	60.4	10.1	5.8
West	72.2	71.6	-10.7	10.1	57.6	56.4	6.1	6.7
Urbanicity of school 1988								
Urban	*75.3*	*76.8*	*(†)*	*(†)*	*52.7*	*57.0*	*(†)*	*(†)*
Suburban	73.5*	71.9	-4.9	6.1	58.3	60.8	5.0	5.1
Rural	72.9	72.0	-4.7	15.6	58.9*	52.0	8.8	8.9
Generational status								
First-generation[4]	74.7	72.8	0.1	11.9	64.6	63.4	10.7	7.4
Second-generation[5]	79.4*	75.3	2.6	13.6	56.1	55.4	2.7	4.4
Third-generation or more[6]	*67.0*	*72.7*	*(†)*	*(†)*	*56.4*	*52.8*	*(†)*	*(†)*

*Comparison with reference group statistically significant at the 0.05 level. Italicized row is reference group.

†Not applicable for reference group.

[1]Percentages adjusted for differences associated with control variables in the regression (see appendix B for details).

[2]Weighted least squares (WLS) coefficient (see appendix B for details).

[3]Standard error of the WLS coefficient, adjusted for design effect (see appendix B for details).

[4]Students who were born outside of the 50 states or the District of Columbia.

[5]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[6]U.S.-born students whose parents were also U.S. born.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Table C5—Percentage of 1988 eighth graders enrolled in a postsecondary institution, and percentage adjusted for the covariation of the variables listed in the table, by various characteristics

	Asian				Hispanic			
	Unadjusted percentage	Adjusted percentage[1]	WLS coefficient[2]	Standard error[3]	Unadjusted percentage	Adjusted percentage[1]	WLS coefficient[2]	Standard error[3]
Total	79.1	79.1	80.7	0.0	52.8	52.8	29.4	0.0
Family composition								
Two-parent family	79.6	78.1	-11.9	19.7	54.3	52.6	1.2	6.7
Single/Other	*75.3*	*90.0*	*(†)*	*(†)*	*48.4*	*51.4*	*(†)*	*(†)*
Parents' education								
High school or less	*57.7*	*58.6*	*(†)*	*(†)*	*44.8*	*48.2*	*(†)*	*(†)*
Some college	75.7*	75.7	17.1	9.5	56.6*	53.6	5.4	5.5
Bachelor's degree or greater	92.7*	92.3*	33.7	9.6	79.0*	69.6*	21.4	8.1
Poverty status 1988								
At or below poverty line	*76.4*	*77.1*	*(†)*	*(†)*	*38.0*	*38.8*	*(†)*	*(†)*
Above poverty line	80.3	86.9	-9.9	8.7	67.5*	62.6*	23.7	4.4
School control 1988								
Private/Parochial	73.7	75.5	-4.3	6.9	81.4*	76.1*	25.9	6.1
Public	*80.4*	*79.8*	*(†)*	*(†)*	*49.6*	*50.2*	*(†)*	*(†)*
School region 1988								
East	*91.4*	*93.9*	*(†)*	*(†)*	*60.6*	*56.6*	*(†)*	*(†)*
North central	64.9*	65.5*	-28.4	10.9	47.8*	46.5	-10.1	6.7
South	76.5*	74.3	-19.7	16.1	47.6*	49.5	-7.1	5.7
West	80.6*	80.7	-13.3	9.3	55.8*	55.0	-1.5	6.6
Urbanicity of school 1988								
Urban	*78.6*	*79.4*	*(†)*	*(†)*	*50.5*	*52.1*	*(†)*	*(†)*
Suburban	80.5	78.6	-0.8	5.6	55.0	57.3	1.7	5.0
Rural	72.6	80.0	0.6	14.4	53.4	50.4	6.9	8.7
Generational status								
First-generation[4]	81.8*	80.2	14.0	11.0	55.7	57.2	8.9	7.2
Second-generation[5]	89.4*	84.8	18.6	12.6	56.1	54.5	6.1	4.3
Third-generation or more[6]	*62.7*	*66.2*	*(†)*	*(†)*	*51.7*	*48.3*	*(†)*	*(†)*

*Comparison with reference group statistically significant at the 0.05 level. Italicized row is reference group.

†Not applicable for reference group.

[1]Percentages adjusted for differences associated with control variables in the regression (see appendix B for details).

[2]Weighted least squares (WLS) coefficient (see appendix B for details).

[3]Standard error of the WLS coefficient, adjusted for design effect (see appendix B for details).

[4]Students who were born outside of the 50 states or the District of Columbia.

[5]U.S.-born students with one or both parents born outside of the 50 states or the District of Columbia.

[6]U.S.-born students whose parents were also U.S. born.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.

Table C6—Results of regression analysis predicting enrollment in postsecondary education, high school program type, student educational plans, and parent plans for their child's education, by various characteristics including race–ethnicity

A. Equation predicting type of first institution 1= Enrolled in a PSE institution, 0=otherwise

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	0.41	0.05		7.84	0.00
Parents' education: Some college	0.11	0.02	0.10	4.57	0.00
Parents' education: BA or higher	0.26	0.03	0.21	8.42	0.00
Family composition: Two-parent	0.02	0.03	0.01	0.71	0.48
Above poverty level	0.19	0.02	0.18	8.03	0.00
Urbanicity 1988: Suburban	0.02	0.02	0.02	0.71	0.48
Urbanicity 1988: Rural	0.05	0.03	0.04	1.83	0.07
Region 1988: North central	-0.15	0.04	-0.10	-3.80	0.00
Region 1988: South	-0.09	0.03	-0.08	-2.75	0.01
Region 1988: West	-0.03	0.03	-0.03	-0.81	0.42
Private/parochial school	0.12	0.03	0.08	3.62	0.00
Race–ethnicity: Hispanic	-0.10	0.03	-0.09	-3.75	0.00
1st generation	0.11	0.03	0.10	4.05	0.00

*Comparison with reference group statistically significant at the 0.05 level. Italicized row is reference group.
†Not applicable for reference group.

B. Equation predicting last high school program type 1=Academic, 0=otherwise

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	0.28	0.03		10.30	0.00
Parents' education: Some college	0.01	0.01	0.03	1.07	0.28
Parents' education: BA or higher	-0.04	0.02	-0.07	-2.77	0.01
Family composition: Two-parent	-0.02	0.01	-0.03	-1.43	0.15
Above poverty level	-0.03	0.01	-0.05	-2.23	0.03
Urbanicity 1988: Suburban	-0.03	0.01	-0.06	-2.46	0.01
Urbanicity 1988: Rural	-0.03	0.02	-0.04	-1.85	0.06
Region 1988: North central	-0.11	0.02	-0.15	-5.41	0.00
Region 1988: South	-0.12	0.02	-0.23	-7.06	0.00
Region 1988: West	-0.14	0.02	-0.28	-8.65	0.00
Private/parochial school	-0.02	0.02	-0.03	-1.15	0.25
Race–ethnicity: Hispanic	-0.01	0.01	0.02	-1.00	0.32
1st generation	-0.06	0.01	-0.11	-4.22	0.00
2nd generation	-0.05	0.01	-0.10	-4.13	0.00

Table C6—Results of regression analysis predicting enrollment in postsecondary education, high school program type, student educational plans, and parent plans for their child's education, by various characteristics including race–ethnicity—Continued

C. Equation predicting plans for PSE 1988 1=Bachelor's degree or higher, 0=otherwise

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	0.45	0.05		8.54	0.00
Parents' education: Some college	0.12	0.02	0.11	4.91	0.00
Parents' education: BA or higher	0.35	0.03	0.28	11.11	0.00
Family composition: Two-parent	-0.01	0.03	-0.01	-0.36	0.72
Above poverty level	0.08	0.02	0.08	3.46	0.00
Urbanicity 1988: Suburban	-0.01	0.02	-0.01	-0.26	0.80
Urbanicity 1988: Rural	-0.02	0.03	-0.01	-0.58	0.56
Region 1988: North central	-0.09	0.04	-0.06	-2.38	0.02
Region 1988: South	-0.01	0.03	-0.01	-0.19	0.85
Region 1988: West	-0.03	0.03	-0.03	-0.85	0.39
Private/parochial school	0.07	0.03	0.05	2.18	0.03
Race–ethnicity: Hispanic	-0.01	0.03	-0.01	-0.50	0.62
1st generation	0.07	0.03	0.06	2.44	0.01
2nd generation	0.02	0.02	0.02	0.92	0.36

D. Equation predicting parents' educational expectations 1988 1=Bachelor's degree or higher, 0=otherwise

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	0.38	0.05		7.43	0.00
Parents' education: Some college	0.19	0.02	0.18	8.05	0.00
Parents' education: BA or higher	0.40	0.03	0.32	13.30	0.00
Family composition: Two-parent	-0.07	0.03	-0.05	-2.43	0.02
Above poverty level	0.13	0.02	0.12	5.58	0.00
Urbanicity 1988: Suburban	0.03	0.02	0.03	1.37	0.17
Urbanicity 1988: Rural	-0.04	0.03	-0.03	-1.20	0.23
Region 1988: North central	0.00	0.04	0.00	-0.01	1.00
Region 1988: South	0.01	0.03	0.01	0.43	0.66
Region 1988: West	0.04	0.03	0.04	1.40	0.16
Private/parochial school	0.09	0.03	0.06	2.97	0.00
Race–ethnicity: Hispanic	-0.10	0.03	-0.09	-3.87	0.00
1st generation	0.09	0.03	0.08	3.14	0.00
2nd generation	0.05	0.02	0.05	2.33	0.02

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study: 1988/94, Data Analysis System.